RADIO SYSTEM "PREMIUM V" AND "PREMIUM V - MONSOON", ON BOARD DIAGNOSTIC (OBD)

GENERAL INFORMATION

Radio system "Premium V" is installed from start of production.

Radio system "Premium V - Monsoon" is installed as optional equipment from 10.00 production.

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

The radio is controlled by an internal microprocessor with On Board Diagnostic (OBD) capability. If malfunctions occur in monitored components, Diagnostic Trouble Codes (DTC) will be stored in memory together with an indication of malfunction type. A maximum of 4 DTCs can be stored simultaneously.

Sporadic malfunctions (indicated in the readout by "SP") are automatically cancelled if not repeated in the next 50 engine starts.

Before performing any troubleshooting or inspection, always begin by checking for DTCs using the On Board Diagnostic (OBD) program. DTCs stored in memory are retrieved/checked with VAG 1551/1552 Scan Tools (ST) or VAS 5051 Vehicle Diagnostic Testing and Information System.

Notes on exchanging radio

- Do not disassemble radio.
- When the replacement of a malfunctioning radio is necessary, follow exchange part procedures.
- Complete the report form and return together with radio.
- Use the original packaging from the new radio when returning.

Additional information:

- Complaint/symptom based Technical Bulletins ("Service Fixes"):
- Technical Bulletins
- Radio system descriptions. See **Radio, "Premium V"** .

VAG 1551 SCAN TOOL (ST), CONNECTING, SELECTING FUNCTIONS & CHECKING CONTROL MODULE VERSIONS

NOTE: The following description deals only with the VAG 1551 scan tool.

Connecting VAG1551 scan tool and selecting functions

Requirements

- All fuses OK according to wiring diagram
- Battery (B+) voltage at least 9.0 V

Special tools and equipment

- VAG1551 Scan Tool (ST)
- VAG1551/3B adapter cable

Check control module version (function 01)

The Data Link Connector (DLC) is located under the instrument panel to the left.

- Connect VAG1551 scan tool using VAG1551/3B adapter cable.

Indicated on display. Operating modes 1 and 2 are displayed alternately.

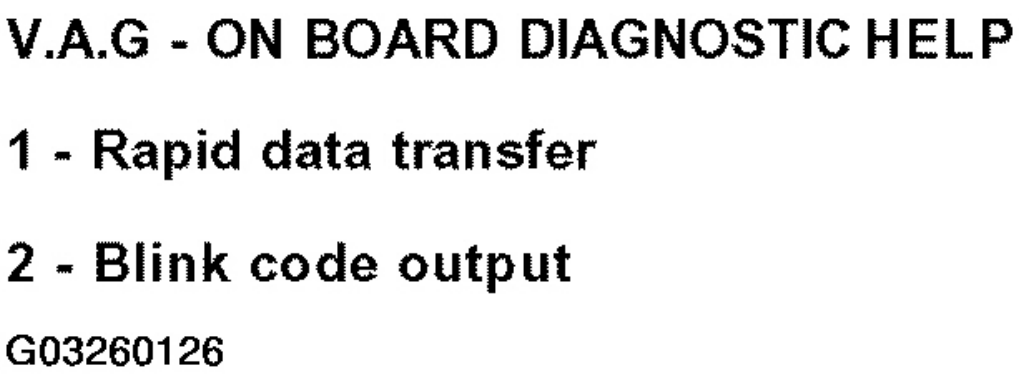


Fig. 1: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (1 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If the display remains blank, check VAG1551 voltage supply according to wiring diagram.**
- **Additional operating instructions can be printed out by pressing the HELP button.**
- **The --> button is used to advance through the program sequence.**

- **In "Rapid data transfer" operating mode 1, all vehicle control modules with OBD capability can be checked automatically using "Automatic Test Sequence" address word 00.**

- Switch ignition on.
- Switch printer on by pressing PRINT button (indicator lamp in button lights up).
- Press button -1- for "Rapid data transfer" mode.

Indicated on display

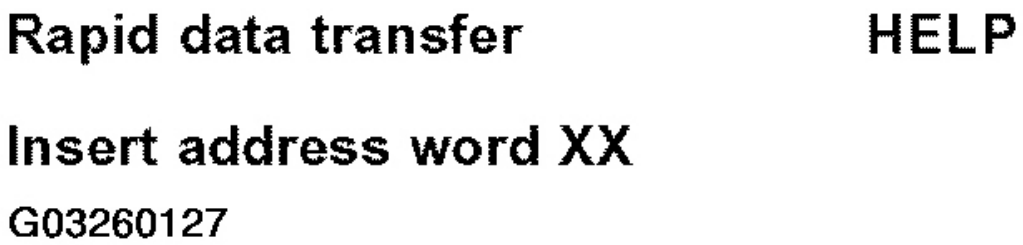


Fig. 2: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (2 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -5- and -6- to insert "Radio" address word 56.

Indicated on display

Fig. 3: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (3 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

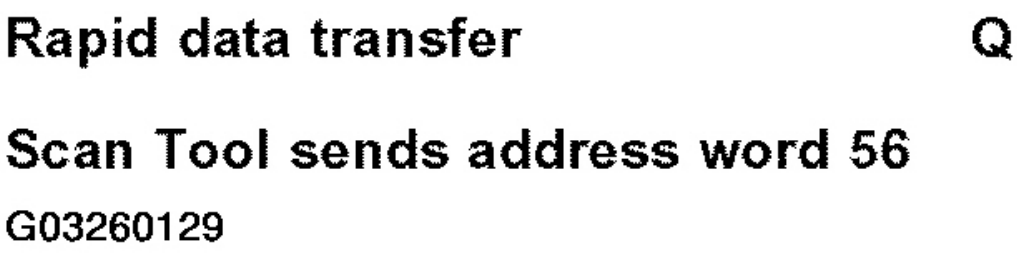


Fig. 4: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (4 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Indicated on display

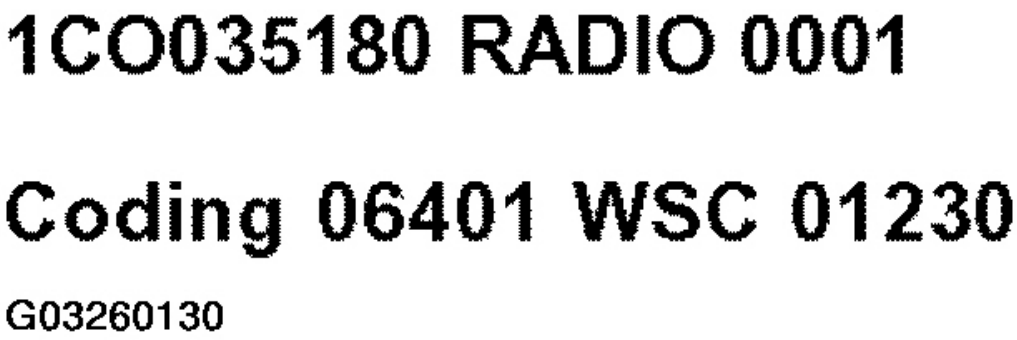


Fig. 5: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (5 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- 1CO035180: Part No. of control module
- RADIO: Component designation
- 0001: Software version installed in radio
- Coding 06401: Example of a coding for radio "New Beetle"

- WSC 01230: Dealership number. Will be automatically stored in control module when entering the system.

CAUTION:
- **Part numbers are listed here for reference only.**
- **Always check with your Parts department for the latest information.**

- Press --> button.

Indicated on radio display during OBD

Fig. 6: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (6 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If indicated on display

Fig. 7: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (7 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- By pressing HELP button, a list of possible malfunction causes is printed out.
- After repairing malfunction, insert address word 56
- Press -Q- button to confirm input.

Indicated on display. For different codings, see **CODE CONTROL MODULE (FUNCTION 07)** .

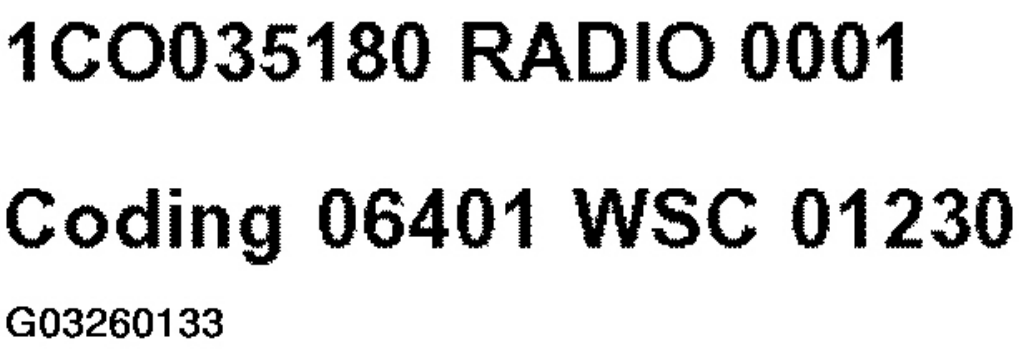


Fig. 8: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (8 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

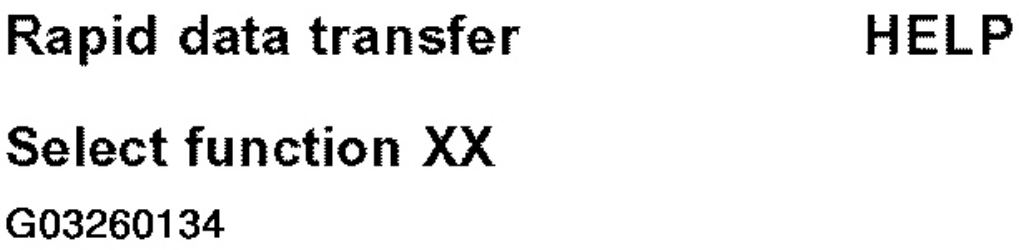


Fig. 9: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (9 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press HELP button

- List of available functions is printed out, see **LIST OF AVAILABLE FUNCTIONS** .

List of available functions

AVAILABLE FUNCTIONS CHART

Function	Explanation	See
01	Check Control Module Versions	**CHECK CONTROL MODULE VERSION (FUNCTION 01)**
02	Check Diagnostic Trouble Code (DTC) memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)**
03	Output Diagnostic Test Mode (DTM)	**OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)**
05	Erase DTC Memory	**DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)**
06	End Output	**END OUTPUT (FUNCTION 06)**
07	Code Control Module	**OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)**
08	Read Measuring Value Block	**READ MEASURING VALUE BLOCK (FUNCTION 08)** , EVALUATING DISPLAY GROUP NUMBER 050.

NOTE:

- **Do not select further functions, which can be printed out after pressing HELP button.**
- **After function is completed, VAG 1551 returns to following start position.**

Indicated on display

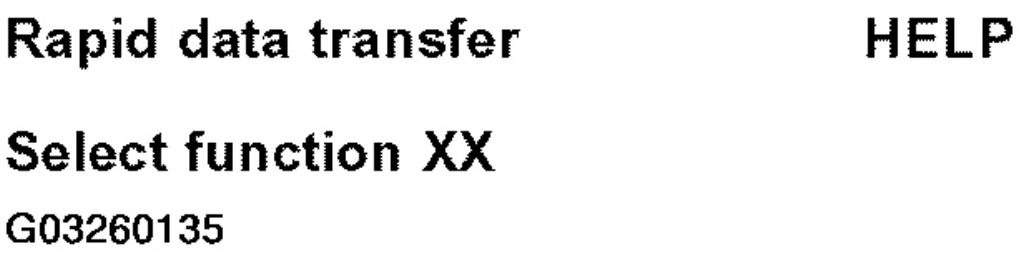


Fig. 10: VAG 1551 Scan Tool Display - Connecting VAG 1551 Scan Tool (10 Of 10)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

To correctly diagnose all malfunctions, output Diagnostic Test Mode (DTM) must be carried out before checking DTC memory.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)

NOTE: The displayed DTC information is updated only when initiating OBD or with "Erase DTC Memory" function 05.

- Switch printer on by pressing PRINT button (indicator lamp in button lights up).

Indicated on display

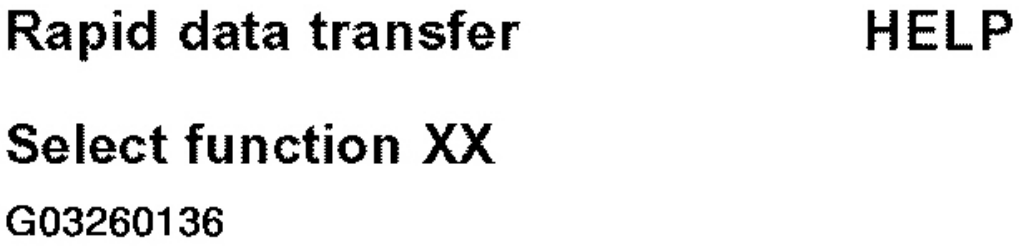


Fig. 11: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (1 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -2- to select function 02 "Check DTC Memory".

Indicated on display

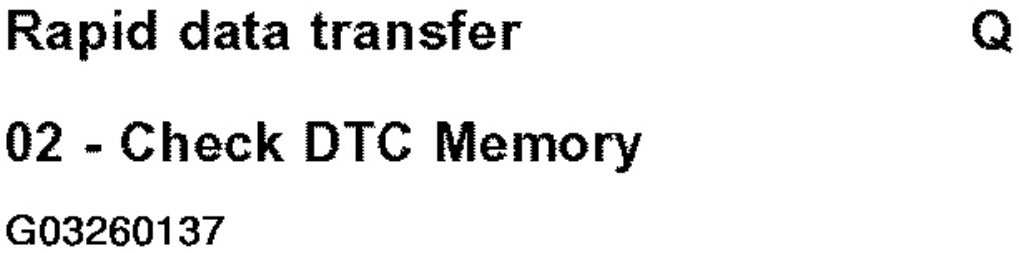


Fig. 12: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (2 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

The number of stored DTCs appears on the display.

Fig. 13: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (3 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Stored DTCs are displayed and printed out one after another.

- Check print-out against DTC table and repair all malfunction as necessary, See **DIAGNOSTIC TROUBLE CODE (DTC) TABLE** .

If "No DTC recognized" is displayed the program will return to initial position after pressing --> button.

Fig. 14: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (4 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Indicated on display

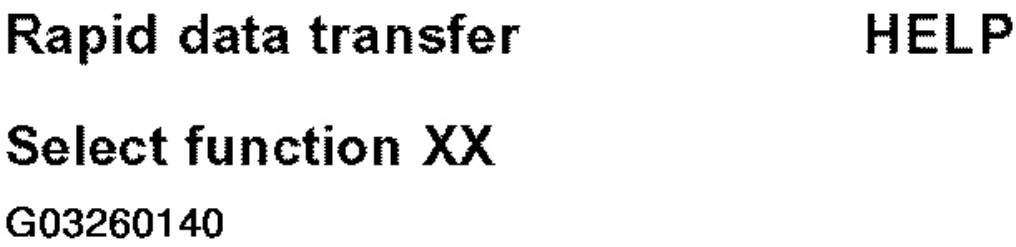


Fig. 15: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory (5 Of 5)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

If something else is displayed:

See *Scan Tool operating instructions*

- End output (function 06), See **END OUTPUT (FUNCTION 06)** .
- Switch ignition off and disconnect VAG1551 scan tool.

DIAGNOSTIC TROUBLE CODE (DTC) TABLE

NOTE:

- **The following table lists all the malfunctions with the corresponding 5-digit code numbers that can be recognized by the radio and printed out byVAG1551 scan tool.**
- **DTC codes appear only on print-out.**
- **Before replacing components, check wiring and connections to these components as well as Ground (GND) connections, according to wiring diagram.**
- **When a malfunction has been repaired, DTC memory must always be checked again with VAG1551 scan tool and erased.**

DIAGNOSTIC TROUBLE CODE (DTC) - PREMIUM V AND PREMIUM V - MONSOON

DTC VAG 1551 scan tool display	Possible cause	Possible effects	Corrective action
00668 Battery Positive Voltage (B+) Term. 30 • Signal too low	• Battery voltage below 9.5 V • Battery insufficiently charged	• Poor radio performance or radio inoperative • Poor radio	• Charge battery and if necessary check for malfunctions. • Turn off all unnecessary electrical

	• Battery voltage below 9.5 V • Too many consumers on	performance or radio inoperative	consumers.
00850 Control Output Active, Radio Amplifier • Short circuit to ground	Only for vehicles with sound systems • Short circuit between connector -T20- terminal 6 and ground	• Sound system inoperative	• Check for short circuit to ground according to wiring diagram.
00852 Loudspeaker front • Short circuit • Open circuit	• Short circuit to ground in wiring to one front loudspeaker • Open circuit in wiring to one front bass loudspeaker	• One front loudspeaker is inoperative • One front bass loudspeaker is inoperative	Short circuit between wiring is only recognized during Output Diagnostic Test Mode (DTM). • Check wiring according to wiring diagram. • Check wiring according to wiring diagram.
00853 Loudspeaker rear • Short circuit • Open circuit	• Short circuit to ground to one rear loudspeaker • Open circuit in wiring to one rear loudspeaker	• One rear loudspeaker is inoperative • One rear loudspeaker inoperative	Short circuit between wiring is only recognized during output Diagnostic Test Mode (DTM). • Check wiring according to wiring diagram. • Check wiring according to wiring diagram.
00855 Connection to CD Changer • No communication	• Open circuit to CD-changer	• CD-changer inoperative	• Check wiring according to wiring diagram.
00856 Radio Antenna • Short circuit • Open circuit	• Antenna cable not connected	• Poor radio performance or radio inoperative • Poor radio performance or	• Check antenna cable according to wiring diagram • Check antenna cable according to wiring diagram.

		radio inoperative	
01044 Control Module incorrectly coded	• Radio not coded	• This DTC cannot be erased. Radio must be coded.	
65535 Control Module Malfunctioning	• Radio faulty	• Replace radio.	

OUTPUT DIAGNOSTIC TEST MODE (DTM) (FUNCTION 03)

The output Diagnostic Test Mode (DTM) is part of the electrical check.

Output DTM checks for a short circuit between the speaker wires.

After output Diagnostic Test Mode (DTM), check DTC memory.

Initiating output Diagnostic Test Mode

NOTE:

- **Output Diagnostic Test Mode (DTM) cannot be initiated, or will be interrupted if engine is running or vehicle is moving.**
- **The -C- button can be used to exit the test sequence at any time.**

- Connect VAG1551 scan tool, select "Rapid data transfer" operating mode 1, switch ignition on and enter "Radio" address word 56.

Indicated on display

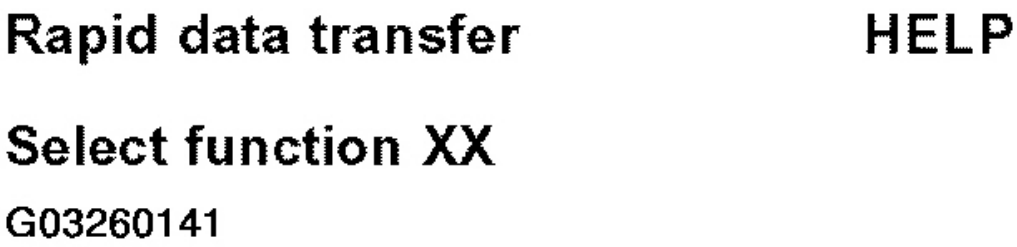


Fig. 16: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (1 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -3- to select function 03 "Output Diagnostic Test Mode".

Indicated on display

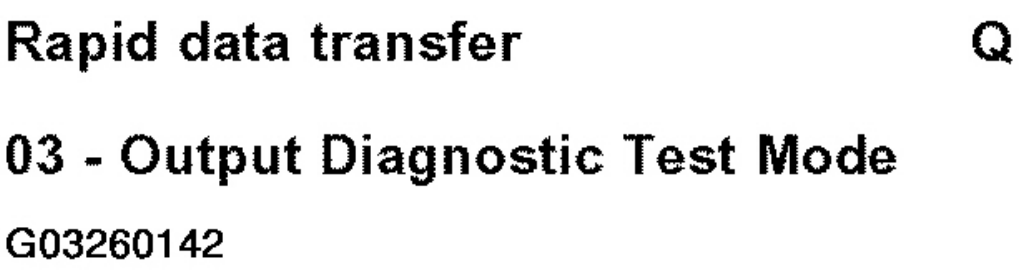


Fig. 17: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (2 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

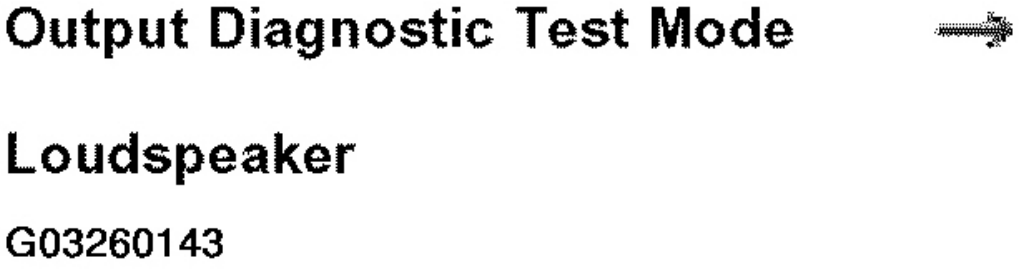


Fig. 18: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (3 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

A short loud tone is heard.

- Press -->button.

Indicated on display

Fig. 19: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (4 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

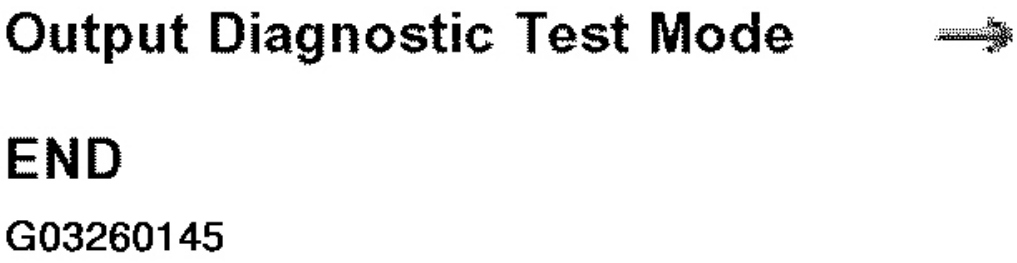


Fig. 20: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (5 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press --> button.

Indicated on display

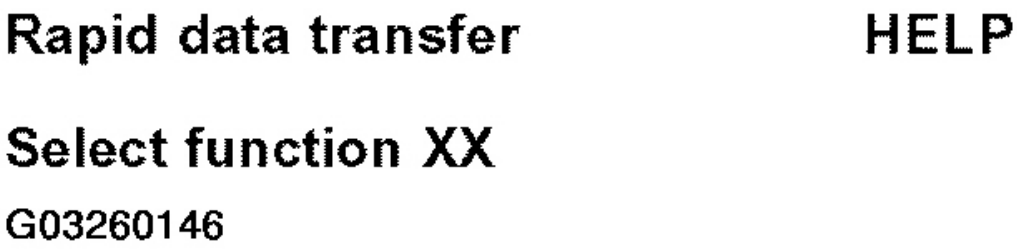


Fig. 21: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (6 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -6- to select function 06 "End Output".

Indicated on display

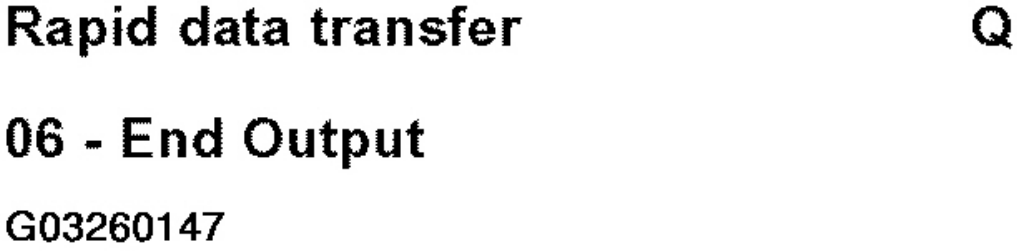


Fig. 22: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (7 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

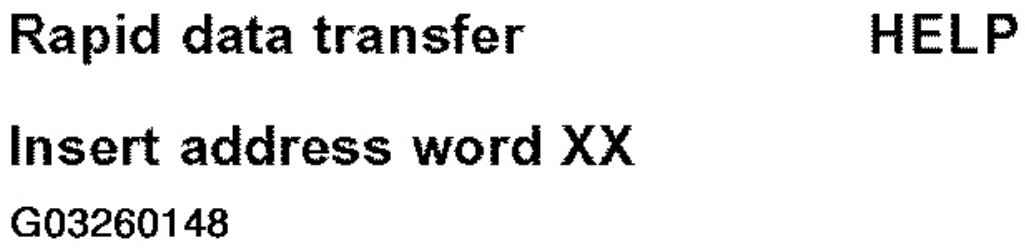


Fig. 23: VAG 1551 Scan Tool Display - Output Diagnostic Test Mode (8 Of 8)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Scan tool returns to start of program sequence.

DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, ERASING (FUNCTION 05)

NOTE: After erasing the DTC memory its contents will automatically be indicated. If the DTC memory cannot be erased, check DTC memory again and repair malfunctions.

Requirements

- DTC memory checked, See **DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02)**
- All malfunctions repaired

(DTC) Memory, erasing (function 05)

After DTC memory has been successfully checked:

Indicated on display

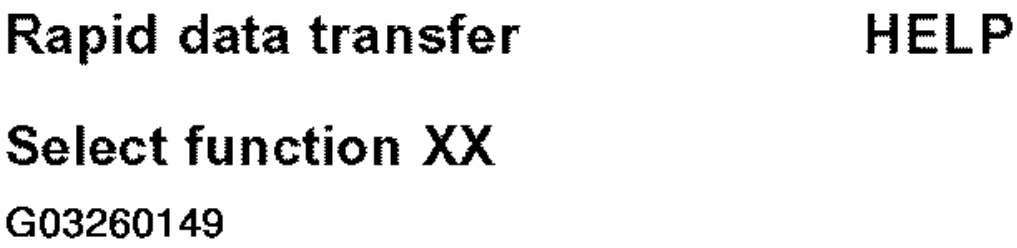


Fig. 24: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (1 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -5- to select "Erase DTC Memory" function 05.

Indicated on display

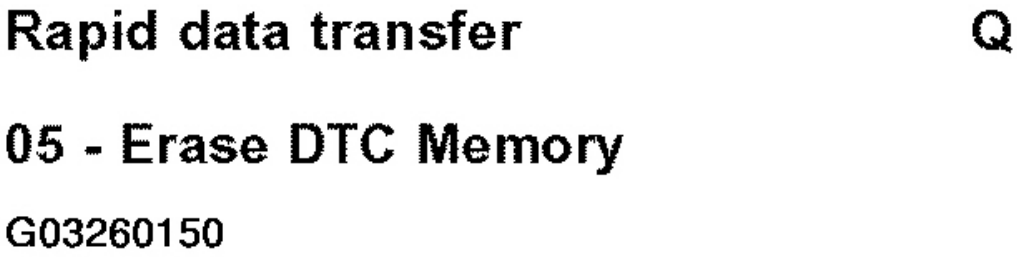


Fig. 25: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (2 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

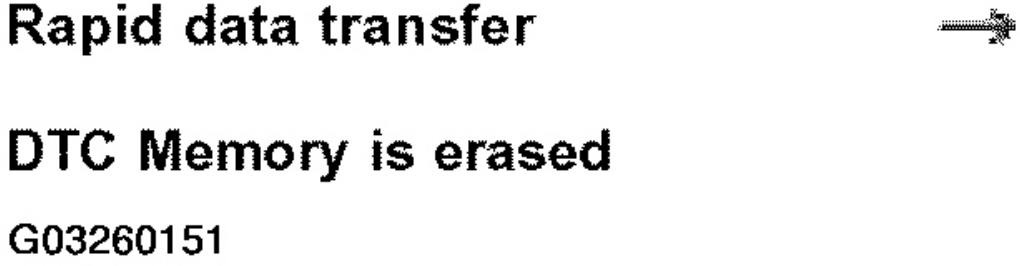


Fig. 26: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (3 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

DTC memory is now erased.

- Press --> button.

Indicated on display

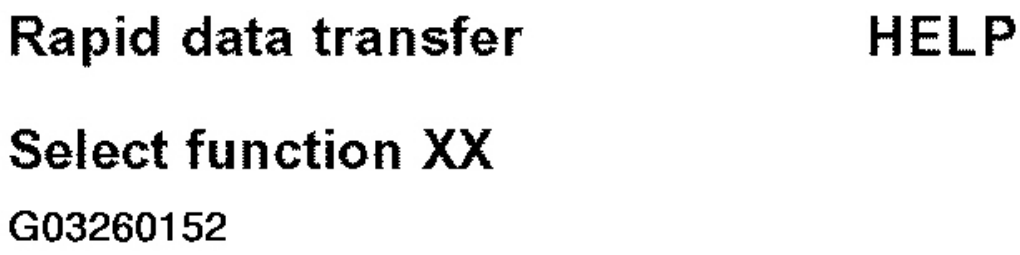


Fig. 27: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (4 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If this appears on the display, the test sequence is faulty.**

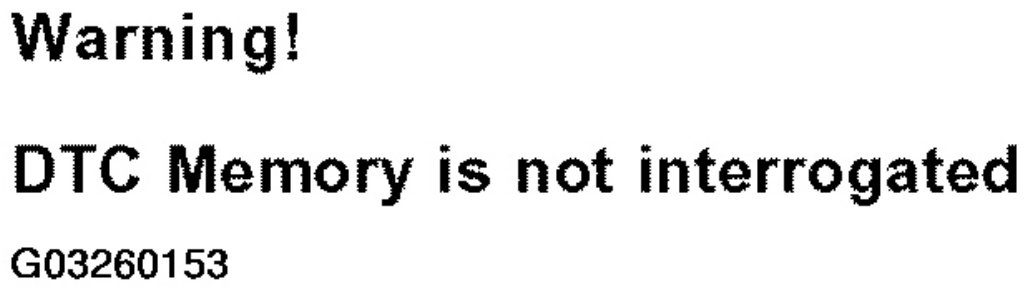


Fig. 28: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (5 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- **If this appears on the display, the test sequence is faulty.**

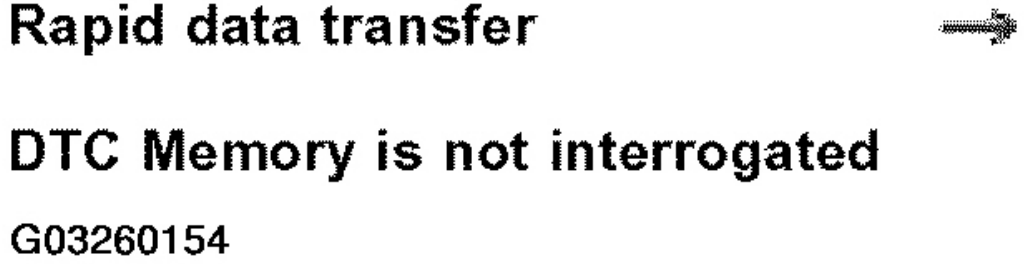


Fig. 29: VAG 1551 Scan Tool Display - Diagnostic Trouble Code Memory Erasing (6 Of 6)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- **Follow the test sequence exactly: First check DTC memory, if necessary repair malfunctions, then erase DTC memory.**

END OUTPUT (FUNCTION 06)

- Press buttons -0- and -6- to select function 06 "End Output".

Indicated on display

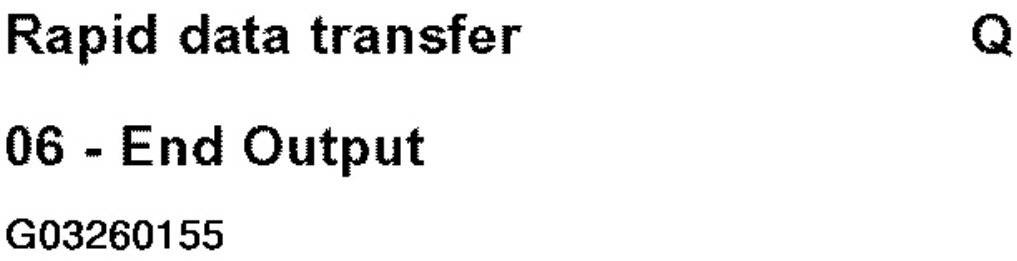


Fig. 30: VAG 1551 Scan Tool Display - End Output (1 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input

Indicated on display

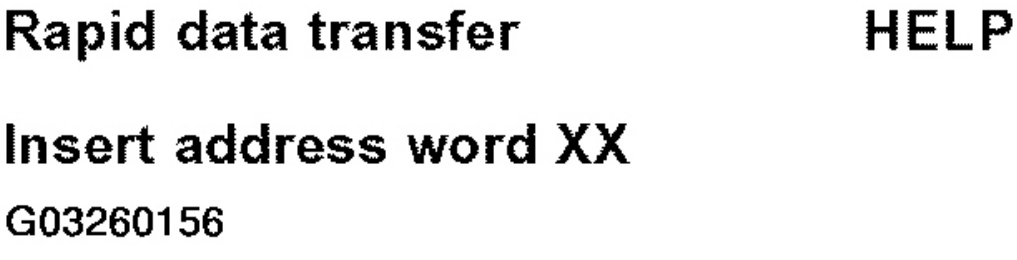


Fig. 31: VAG 1551 Scan Tool Display - End Output (2 Of 2)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Switch ignition off.
- Disconnect VAG1551 scan tool.

CODE CONTROL MODULE (FUNCTION 07)

By using the code control module function the radio can be coded as follows:

- VAG1551 scan tool connected ("Radio" address word 56); press --> button to advance program sequence

Coding

- Press buttons -0- and -7- to select function 07 "Code Control Module"..
- Press -Q- button to confirm input.
- Indicated on display

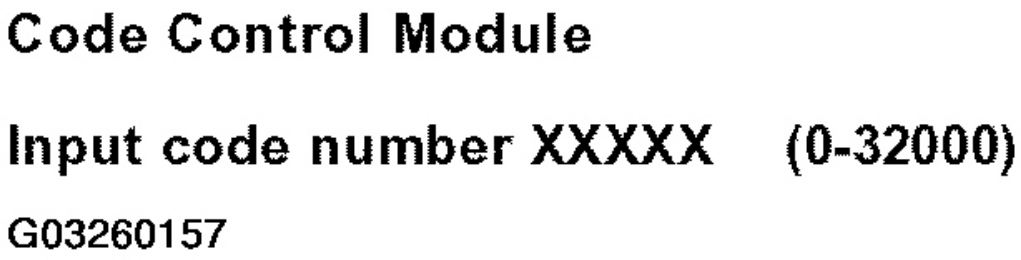


Fig. 32: VAG 1551 Scan Tool Display - Code Control Module (1 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio coding (non-Monsoon)

Monsoon coding, See **RADIO CODING (MONSOON)**

- 06401- for vehicles without CD-changer (if CD-changer is installed later, radio code must be changed accordingly)
- 06403- for vehicles with CD-changer

Indicated on display

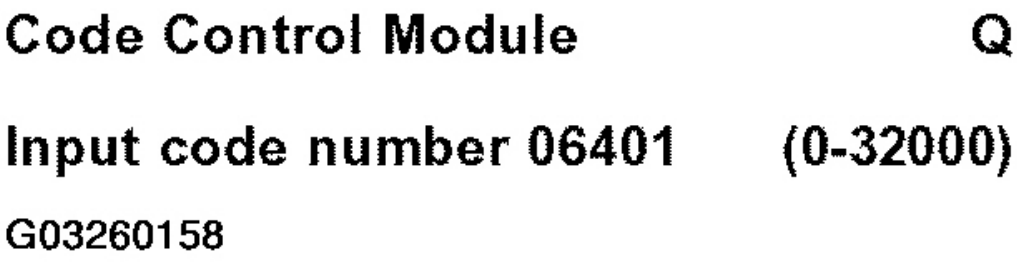


Fig. 33: VAG 1551 Scan Tool Display - Code Control Module (2 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

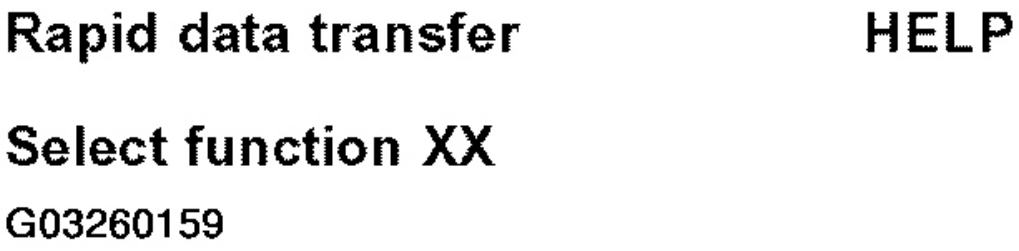


Fig. 34: VAG 1551 Scan Tool Display - Code Control Module (3 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Radio coding (Monsoon)

- 06031- for New Beetle USA, no passive loudspeakers, Monsoon 2-door, active antenna and no CD changer
- 06033- for New Beetle USA, no passive loudspeakers, Monsoon 2-door, active antenna and CD changer

Indicated on display

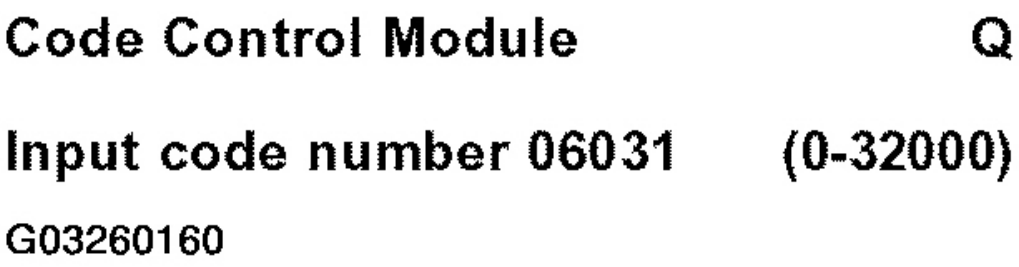


Fig. 35: VAG 1551 Scan Tool Display - Code Control Module (4 Of 7)

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

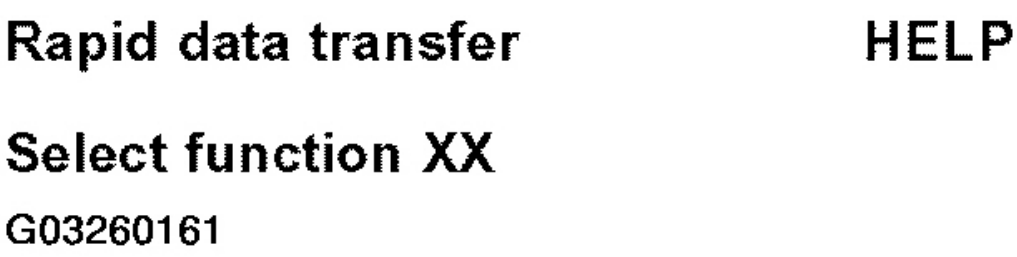


Fig. 36: VAG 1551 Scan Tool Display - Code Control Module (5 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Continuation for all radios

End function:

- Press buttons -0- and -6- to select function 06 "End Output".
- End coding by pressing --> button.

Indicated on display

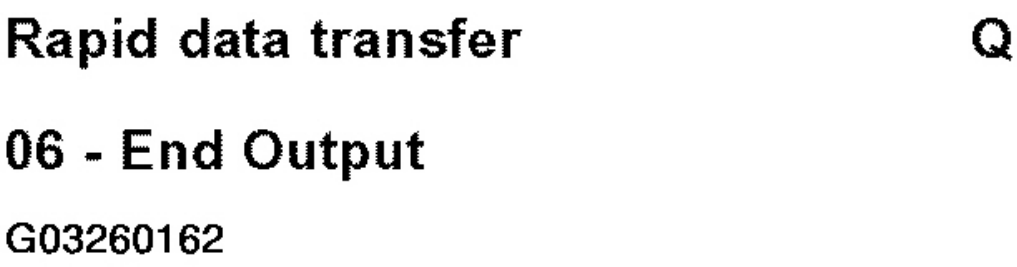


Fig. 37: VAG 1551 Scan Tool Display - Code Control Module (6 Of 7)

Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

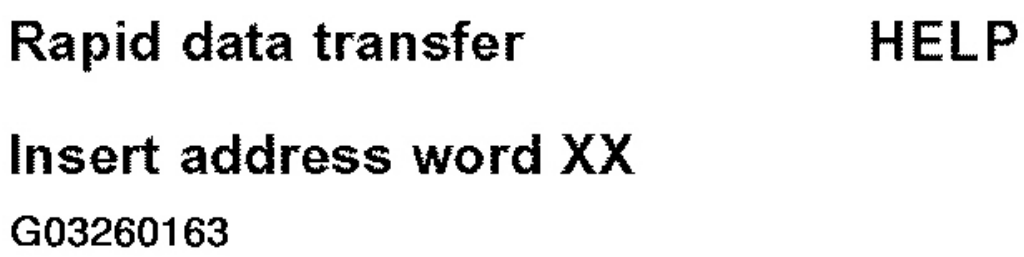


Fig. 38: VAG 1551 Scan Tool Display - Code Control Module (7 Of 7)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Scan tool returns to start of program sequence.

READ MEASURING VALUE BLOCK (FUNCTION 08)

6 display groups, with up to 4 display fields, can be displayed.

Requirement

- Connect VAG1551 scan tool, input address word 56 "Radio" and press --> button, until "Select function XX" appears on display.

Read Measuring Value Block

Indicated on display

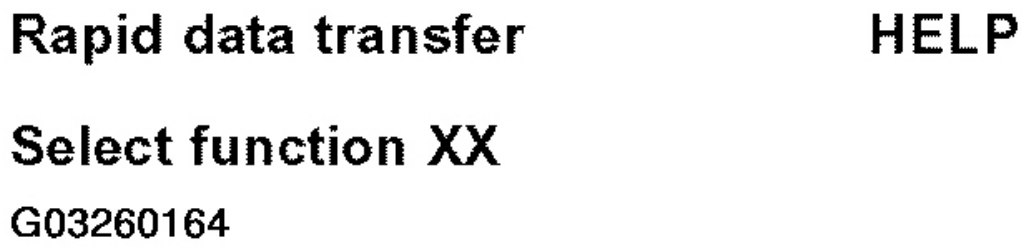


Fig. 39: VAG 1551 Scan Tool Display - Read Measuring Value Block (1 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press buttons -0- and -8- to select function 08 "Read Measuring Value Block".

Indicated on display

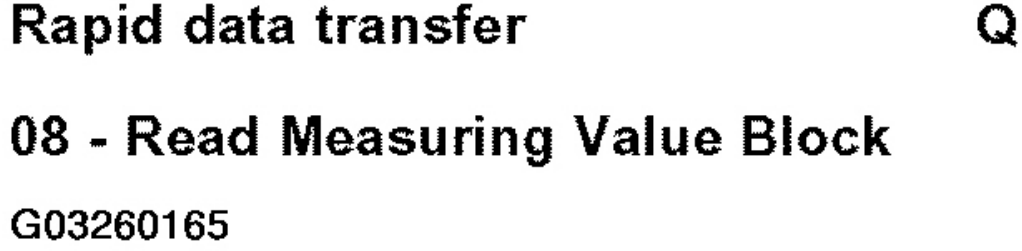


Fig. 40: VAG 1551 Scan Tool Display - Read Measuring Value Block (2 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Press -Q- button to confirm input.

Indicated on display

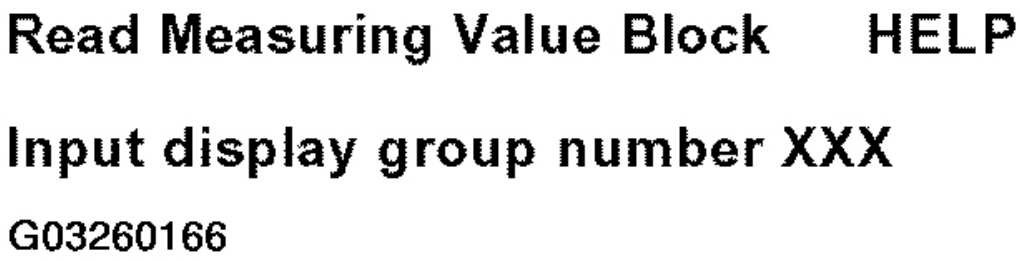


Fig. 41: VAG 1551 Scan Tool Display - Read Measuring Value Block (3 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Input display group number from table, See **TABLE OF DISPLAY GROUP NUMBERS**
- Press -Q- button to confirm input.

Indicated on display

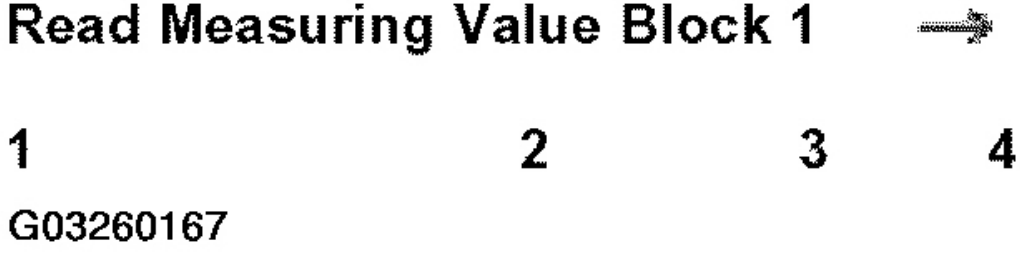


Fig. 42: VAG 1551 Scan Tool Display - Read Measuring Value Block (4 Of 4)
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **Decoding figures in individual display fields, See TABLE OF DISPLAY GROUP NUMBERS .**
- **With printer switched on, display information will be printed-out.**
- **If specifications are attained in all display fields:**

- Press --> button.

Table of display group numbers

DISPLAY GROUP NUMBERS

Display group	Display field in display
001	1 Open 2 Power Supply voltage in V 3 Illumination in % 4 S-contact status (on or off) (Radio does not turn off)
002	1 Front speakers 2 OK, short circuit or open circuit 3 Rear speakers 4 OK, short circuit or open circuit
003	1 Passive or active 2 Antenna 3 OK, short circuit or open circuit 4 Open
004	1 Active amplifier output: 0 - OK 1 - Short circuit to ground 2 Open 3 Open 4 Open
005	1 CD-changer connection (even if CD-changer code is not set) 2 OK or not OK 3 Open 4 Open
006	1 External Display 2 not OK 3 Open 4 Open

NOTE: After ending function "Read Measuring Value Block" check DTC memory (function 02), See DIAGNOSTIC TROUBLE CODE (DTC) MEMORY, CHECKING (FUNCTION 02) .

RADIO SYSTEMS

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**

- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

Radio system Premium V" is installed from start of production, See **RADIO, "PREMIUM V"** .

Radio system "Premium V - Monsoon" is installed as optional equipment from 10.00, See **RADIO, "PREMIUM V - MONSOON"** .

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

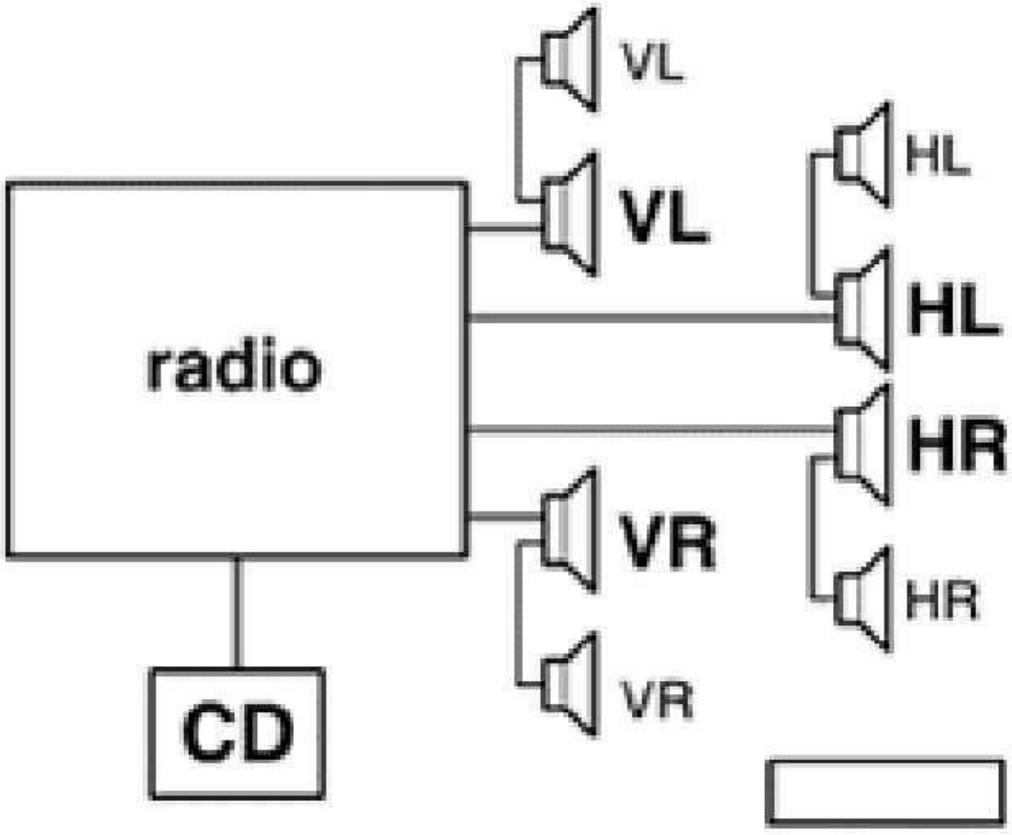
All radios are protected with anti-theft security coding (fixed code). See **ANTI-THEFT SECURITY CODE** . Also, See Radio owner's manual.

NOTE:

- **Only factory approved accessory radios and radio equipment (available from Volkswagen of America, Inc.) should be installed. This ensures proper installation and optimum function.**
- **When retrofitting components, carrying out diagnostics or repairs.**

RADIO, "PREMIUM V"

Installed from start of production.



VL = Left front

HL = Left rear

VR = Right front

HR = Right rear

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Fig. 43: Identifying Radio Speakers Position
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The radio system consists of the receiver/tape unit and speakers located in the front doors and rear side panels.

A 168 mm low-range/bass speaker is located in the lower portion of each front door and rear side panel.

High range/treble speakers (domed tweeters) are installed in each A-pillar.

A CD changer is available as optional equipment.

CD Changer Locations:

- through 07.02 production: in luggage compartment, left.
- from 08.02 production: in center console under armrest.

The system uses an amplified roof mounted antenna, See **ROOF MOUNTED ANTENNA, ASSEMBLY** .

Radio system, On Board Diagnostic (OBD)

"Premium V" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

CD Changer

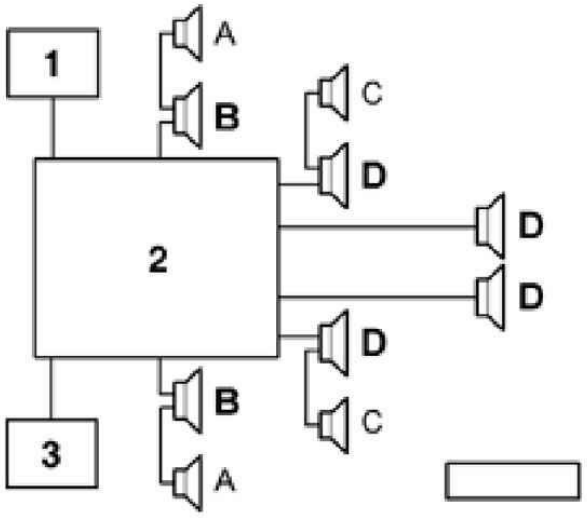
The optional CD changer wiring and mounting is pre-installed in production. Applications:

- m.y. 1998:, See **CD CHANGER - M.Y. 1988, INSTALLING** .
- m.y. 1999 through 07.02 production:, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

RADIO, "PREMIUM V - MONSOON"

Installed as optional equipment from 10.00 production.

Component overview:



1 - Amplifier

2 - Radio Monsoon

3 - CD player

A - Domed treble loudspeaker in inner plenum chamber cover

B - Bass loudspeaker in inner plenum chamber cover

C - Domed treble loudspeaker in A-pillar trim

D - Bass loudspeaker, front and rear in side panel trim

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Fig. 44: Identifying Radio Premium V - Monsoon Position
Courtesy of VOLKSWAGEN UNITED STATES, INC.

The radio system consists of the receiver/tape unit supplemented by a separate high power amplifier mounted in the luggage compartment.

High power handling speakers specifically designed for the "Monsoon" system are located in the front and rear doors as with "Premium V".

A CD changer is available as optional equipment.

CD Changer Locations:

- through 07.02 production: in luggage compartment, left.
- from 08.02 production: in center console under armrest.

The system uses an amplified roof mounted antenna, See **ROOF MOUNTED ANTENNA, ASSEMBLY** .

Radio system, On Board Diagnostic (OBD)

The optional "Premium V- Monsoon" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

CD Changer

The optional CD changer wiring and mounting is pre-installed in production. Applications:

- m.y. 1999 through 07.02 production, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

RADIO MULTI-PIN CONNECTOR ASSIGNMENTS, "PREMIUM V" (INCL. MONSOON)

Terminal assignment of multi-pin connectors I, II, III at rear of radio

Multi-pin connector I, -T20-, consists of 3 separate connector parts

NOTE: The following list refers to items in Fig. 45 .

1. Line out left rear
2. Line out right rear
3. Ground (GND)
4. Line out left front
5. Line out right front
6. Switched positive (B+ out) for amplifier

   Multi-pin connector I, -T20- part 2, green (Where applicable)

7. Open
8. CLOCK
9. DATA
10. ENA

11. Remote control (serial input)
12. Open

Multi-pin connector I, -T20- part 3, blue

13. CD changer- DATA IN
14. CD changer - DATA OUT
15. CD changer- CLOCK
16. CD changer - Positive (B+) supply
17. CD changer - Control signal
18. CD changer - Ground (GND) supply
19. CD changer - Line out, left
20. CD changer - Line out, right

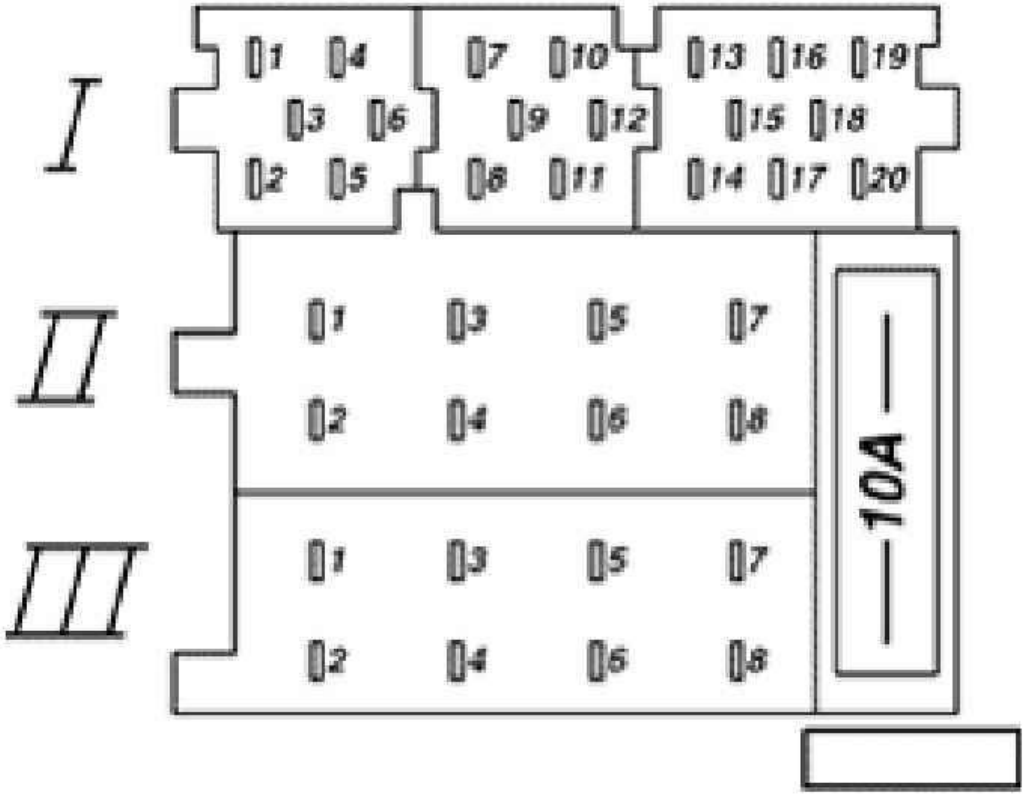

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Fig. 45: Identifying Multi-Pin Connector
Courtesy of VOLKSWAGEN UNITED STATES, INC.

"Premium V" Multi-pin connector II, -T8a-, 8-pin, brown

NOTE: The following list refers to items in Fig. 45 .

1. Right rear loudspeaker +
2. Right rear loudspeaker -
3. Right front loudspeaker +
4. Right front loudspeaker -
5. Left front loudspeaker +
6. Left front loudspeaker -
7. Left rear loudspeaker +
8. Left rear loudspeaker -

"Premium V - Monsoon" Multi-pin connector II, -T8a-, 8-pin, brown

NOTE: The following list refers to items in Fig. 45 .

1. Amplifier + right rear speaker signal
2. Amplifier - right rear speaker signal
3. Amplifier + right front speaker signal
4. Amplifier - right front speaker signal
5. Amplifier + left front speaker signal
6. Amplifier - left front speaker signal
7. Amplifier + left rear speaker signal
8. Amplifier - left rear speaker signal

Multi-pin connector III, -T8-, 8-pin, black

NOTE: The following list refers to items in Fig. 45 .

1. Signal for anti-theft alarm system
2. Open
3. Data Link Connector (DLC) K wire
4. Ignition switch -S- contact
5. Positive (B+) supply, terminal 30 (control input for "SAFE" display/anti-theft)
6. Illumination, terminal 58b
7. Battery positive (B+) supply (terminal 30)

8. Ground (GND) supply

RADIO, REMOVING AND INSTALLING

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

NOTE: If radio is exchanged or replaced

- **Anti-theft security code for new radio must be entered before use, See ANTI-THEFT SECURITY CODE . Be sure to advise customer of new security code.**
- **Confirm radio coding for sound system functions using On Board Diagnostic program function 07: "Code Control Module". See Code Control Module (function 07) .**
- **Radio sound system coding must be performed to account for presence of CD changer (if installed), Monsoon system (where applicable) and interior sound field differences between models.**

RADIO "PREMIUM V" & "PREMIUM V -MONSOON", REMOVING AND INSTALLING

NOTE: Before removing the radio obtain anti-theft security code from customer - vehicle papers. If the radio has been replaced, always activate the anti-theft coding, See ANTI-THEFT SECURITY CODE . Be sure to advise customer of new security code.

Special tools, testers and auxiliary items needed

Radio release tool T10057.

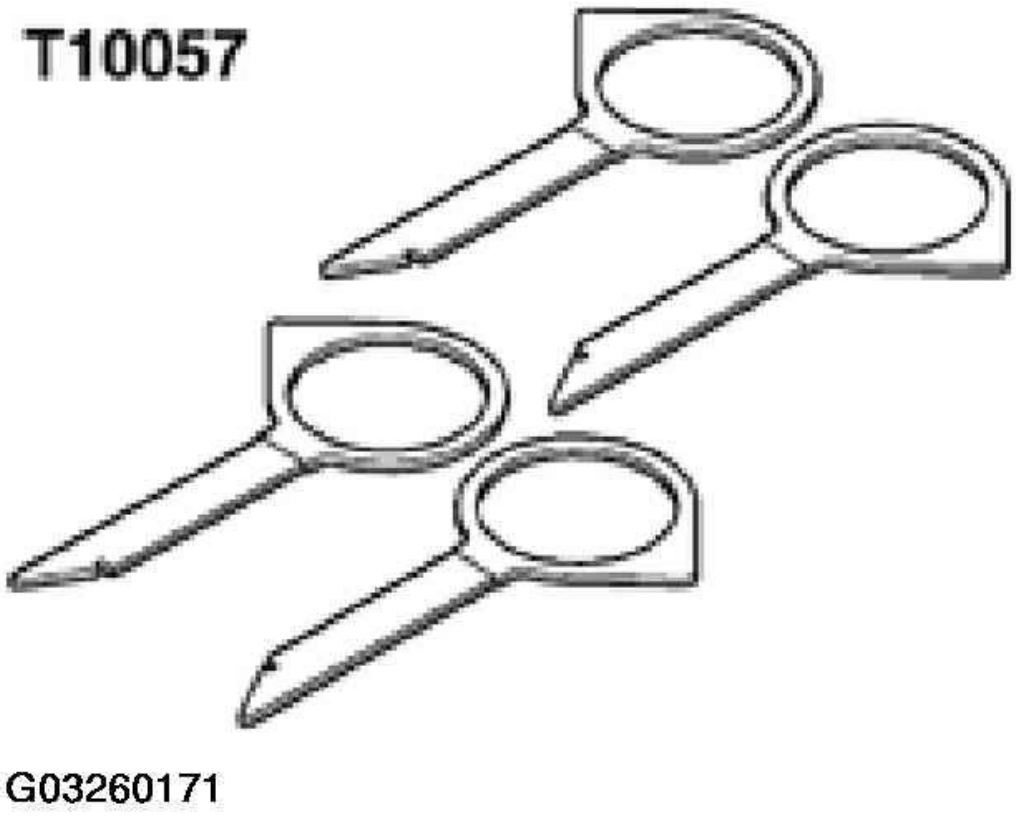


Fig. 46: Identifying Radio Release Tool T10057
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Slide radio release tool T10057 into release slots -arrows- until they engage.
- Pull radio out of instrument panel using grip rings of release tools.

NOTE:

- **The radio release tool T10057 must not be pushed to the side or tilted.**
- **To remove the release tools from the radio the locating lugs on the side of the radio must be pressed inward.**

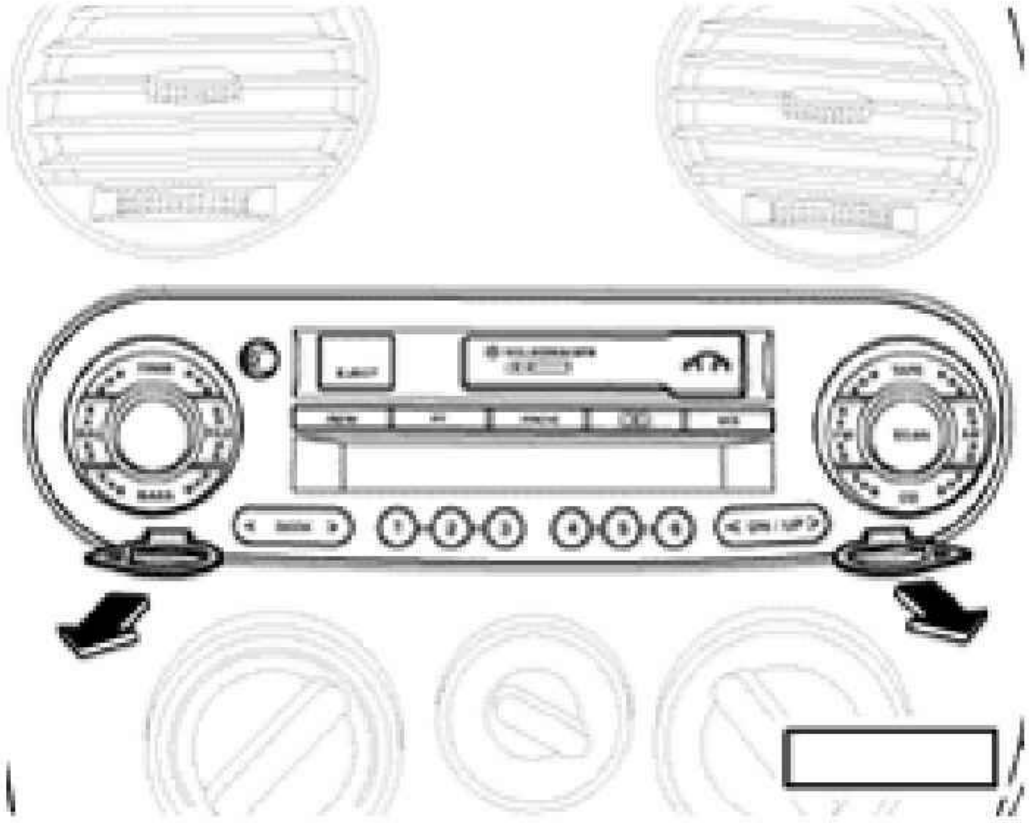


Fig. 47: Identifying Radio System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Disconnect electrical connections and antenna cable from rear of radio.

Installing

- Reconnect electrical connectors and antenna cable to radio.
- Slide radio level into instrument panel until it engages properly in assembly frame.
- Input anti-theft security code, See **ANTI-THEFT SECURITY CODE** .
- Confirm radio coding for sound system functions using On Board Diagnostic program function 07, "Code Control Module". See **Code Control Module (function 07)** .

NOTE: Radio sound system coding must be performed to account for presence of CD changer (if installed), Monsoon system (where applicable) and interior sound

field differences between models.

AMPLIFIER SYSTEM (MONSOON)

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The optional "Premium V - Monsoon" system consists of the "Premium" head unit supplemented by a separate high power amplifier mounted in the rear of the luggage compartment.

High power handling speakers specifically designed for the "Monsoon" system are located in the front and rear doors as with "Premium V".

Before troubleshooting or servicing, technicians must be familiar with the functions and operation specifics of the applicable standard or optional radio system. Always read the radio owner's manual and review all radio, tape player and CD changer functions.

Radio system, On Board Diagnostic (OBD)

The optional "Premium V- Monsoon" radio systems have On Board Diagnostic (OBD) capabilities, See **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)** .

AMPLIFIER (MONSOON), REMOVING AND INSTALLING

The amplifier is located behind the lock carrier trim (left) in the rear of the luggage compartment.

Removing

- Remove lock carrier trim.

  See **INTERIOR TRIM** .

- Remove nuts -1-.

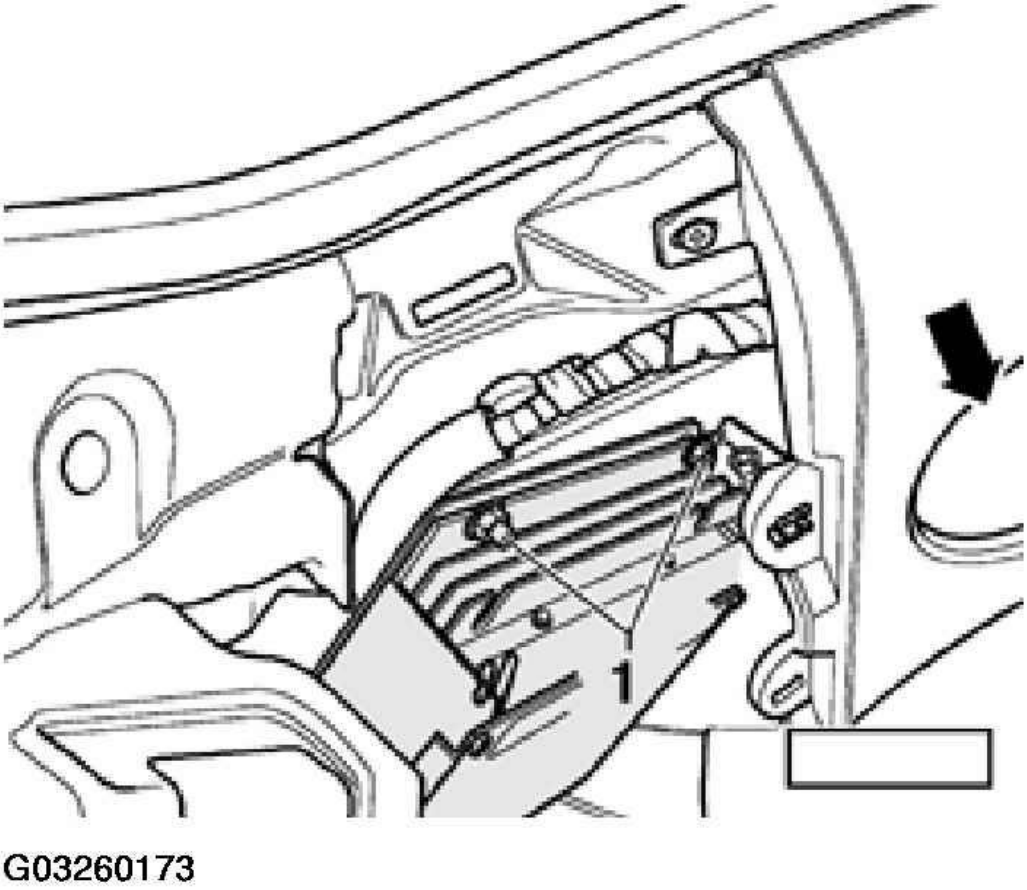


Fig. 48: Removing Nuts -1-
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove cover for assembly opening -arrow-.

NOTE: The assembly opening can be used to gain access to both multi-pin connectors and pull them off the amplifier.

- Disconnect both electrical connections.
- Slide amplifier up and out from bracket.

Installing

- Insert lower part of amplifier into bracket guide rail.
- Reconnect electrical connections.

- Install and tighten nuts -1- to 10 N.m (89 in lb).

Remaining installation in reverse order of removal.

Amplifier bracket, removing and installing

The bracket is secured by 3 nuts to the rear cross panel -arrows-, Tightening tor0que 10 N.m (89 in lb).

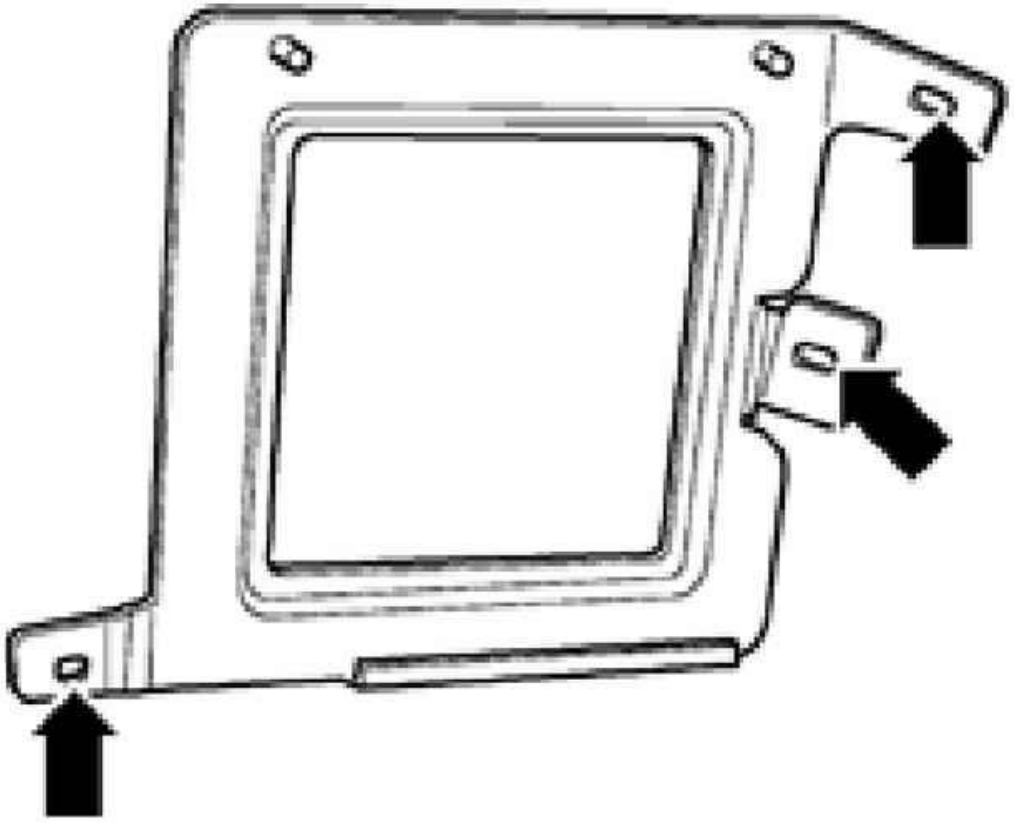


Fig. 49: Removing And Installing Amplifier Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

SPEAKER SYSTEM

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

NOTE: Vehicles equipped with "Monsoon" sound systems include high power handling speakers specifically designed for the "Monsoon" system. Always confirm radio system installed and check with the parts department for proper replacement speaker applications.

SPEAKER SYSTEM, OVERVIEW

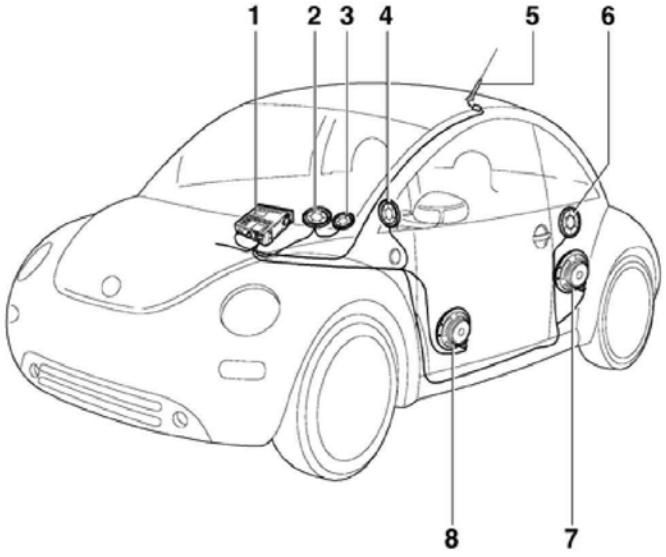
Speaker layout on left side of vehicle is shown. Right side speaker layout is identical.

NOTE: The following list refers to items in Fig. 50 .

1. **Radio**
   - In center console
   - Removing and installing, See **RADIO, REMOVING AND INSTALLING**
2. **Bass loudspeaker (with Monsoon only)**
   - In inner plenum under cover
   - Removing, See **DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING**
3. **Domed treble loudspeaker (with Monsoon only)**
   - In inner plenum under cover
   - Removing, See **DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING**
4. **Domed treble loudspeaker**
   - In A-pillar
   - Removing, See **DOMED TREBLE LOUDSPEAKERS, REMOVING AND INSTALLING**
5. **Roof antenna**
   - Amplified mast type antenna mounted on roof, see **ROOF MOUNTED ANTENNA, ASSEMBLY** .
6. **Not applicable**
7. **Bass loudspeaker**

- In rear side panel
- Removing and installing, See **FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING**

8. **Bass loudspeaker**
    - In front door
    - Removing and instaling, See **FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING**



1 - Radio

- In center console
- Removing and installing ⇒ Page 91-10

2 - Bass loudspeaker (with Monsoon only)

- In inner plenum under cover
- Removing ⇒ Page 91-22

3 - Domed treble loudspeaker (with Monsoon only)

- In inner plenum under covcer
- Removing ⇒ Page 91-22

4 - Domed treble loudspeaker

- In A-pillar
- Removing ⇒ Page 91-20

5 - Roof antenna

- Amplified mast type antenna mounted on roof ⇒ Page 91-29

6 - Not applicable

7 - Bass loudspeaker

- In rear side panel
- Removing and installing ⇒ Page 91-21

8 - Bass loudspeaker

- In front door
- Removing and instaling ⇒ Page 91-21

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Fig. 50: Identifying Speaker System Components
Courtesy of VOLKSWAGEN UNITED STATES, INC.

DOMED TREBLE LOUDSPEAKERS, REMOVING

Speakers -arrow- in front A-pillars are permanently attached to the interior A-pillar trim cover.

Remove/replace entire A-pillar trim cover

See **PILLARS AND SIDE TRIMS** or **PILLARS AND SIDE TRIMS (CONVERTIBLE)** .

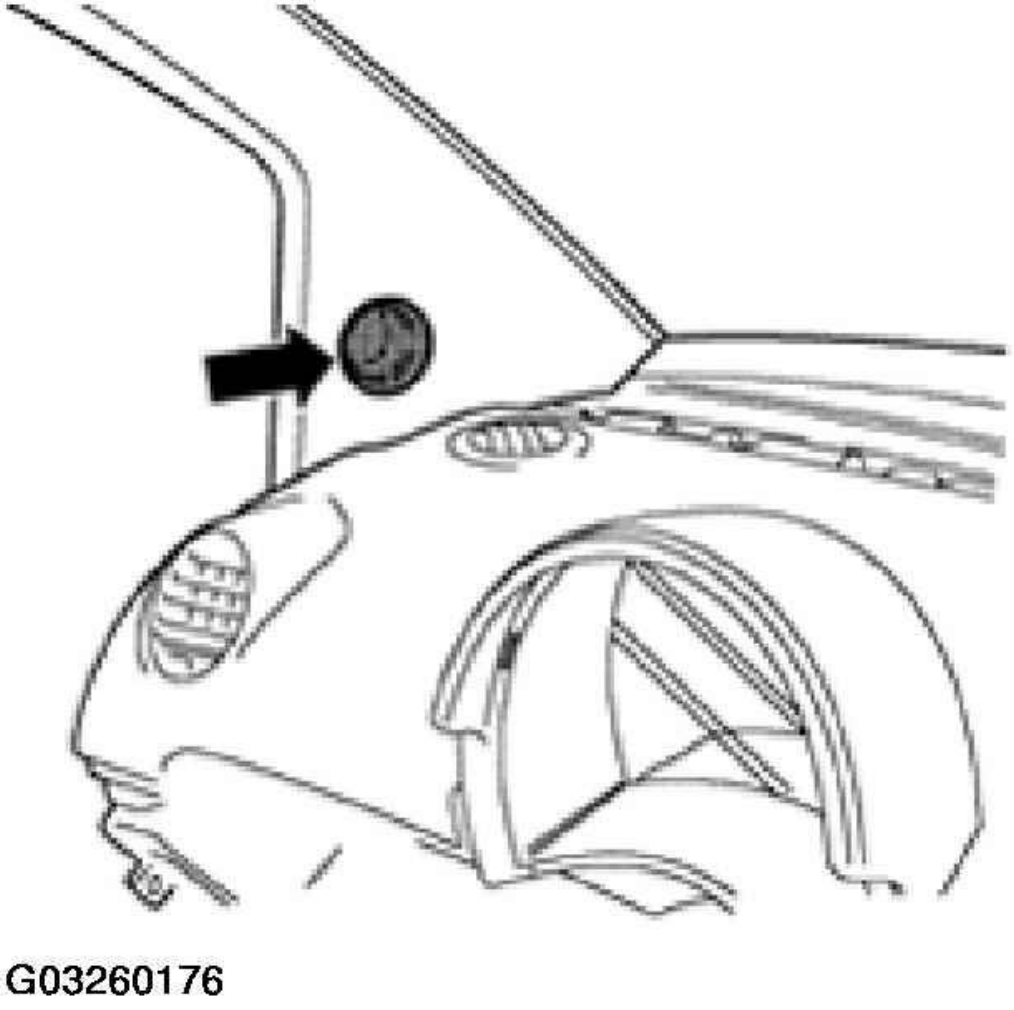

Fig. 51: Identifying Front Pillars Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

FRONT AND REAR BASS LOUDSPEAKERS, REMOVING AND INSTALLING

Removing

- Remove door trim panel, (or rear trim panel)

  See **INTERIOR TRIM** .

- Disconnect electrical connection.
- Carefully drill out rivets -arrows- and remove loudspeaker.

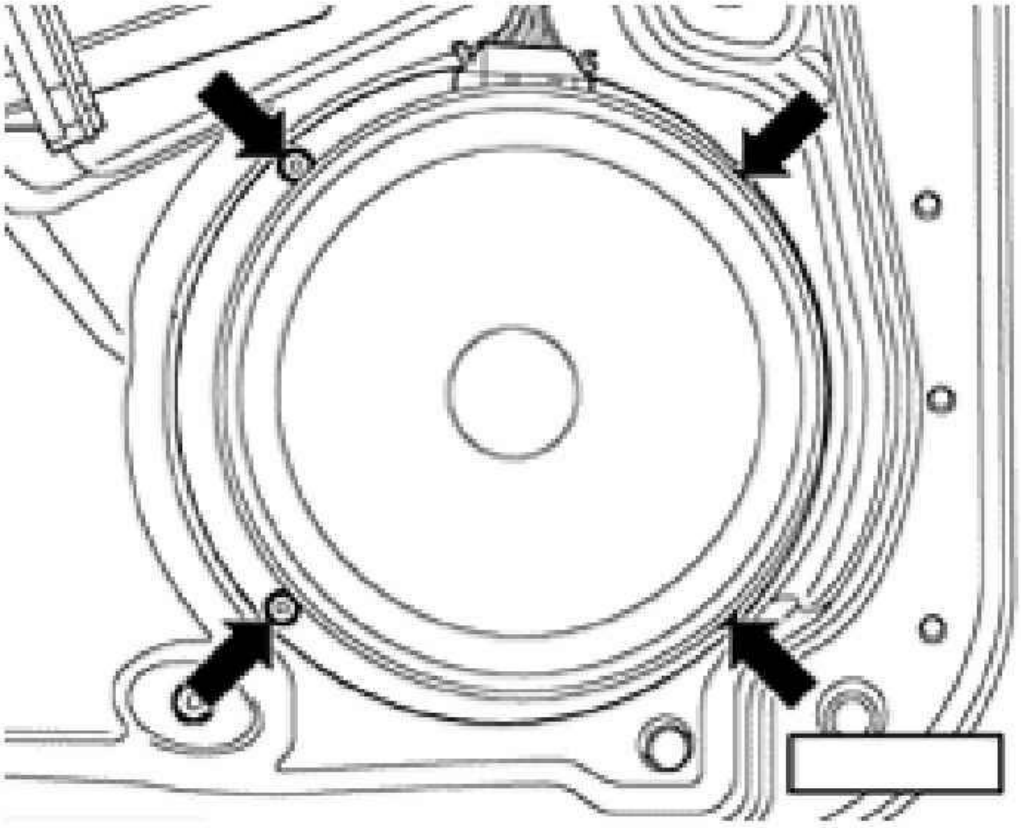

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Fig. 52: Locating Loudspeaker Rivets
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CAUTION:

- **To prevent corrosion, make sure that all metal particles from drilling are removed from inside the door.**
- **If the paint on door frame is damaged during drilling, touch-up immediately.**

Installing

- Secure loudspeaker with locally available pop rivets of proper length and diameter.

NOTE: Do not forget rubber insulation ring between door trim and loudspeaker when reinstalling door trim.

DOMED TREBLE AND BASS LOUDSPEAKERS (MONSOON ONLY), REMOVING AND INSTALLING

Removing

- Slide instrument panel center cover -1- in direction of -arrow A- and remove.

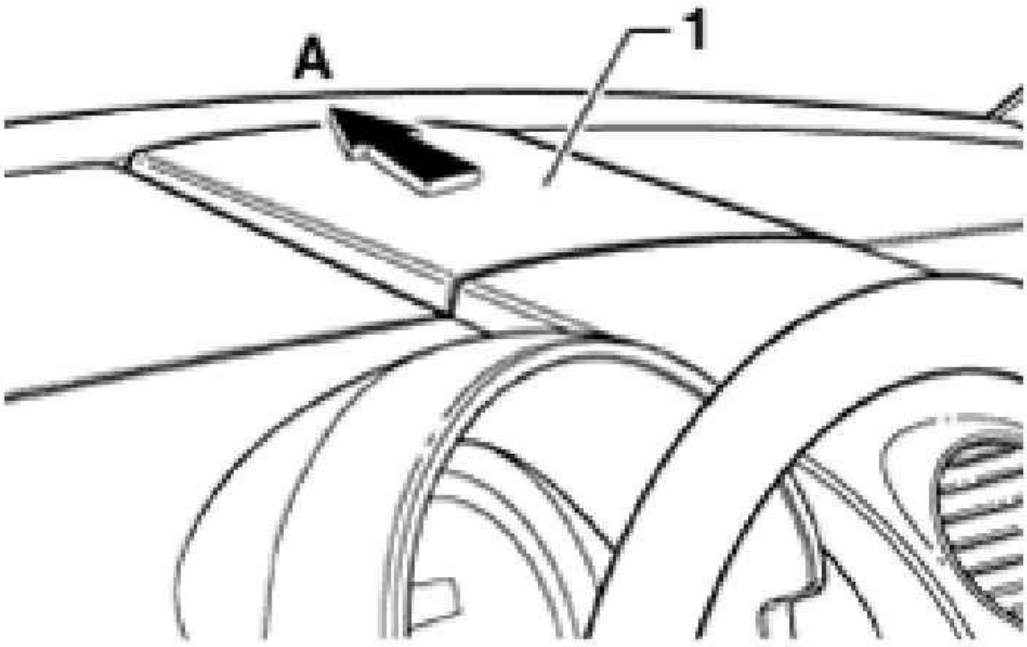

Fig. 53: Sliding Instrument Panel Center Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove screws -arrows-.

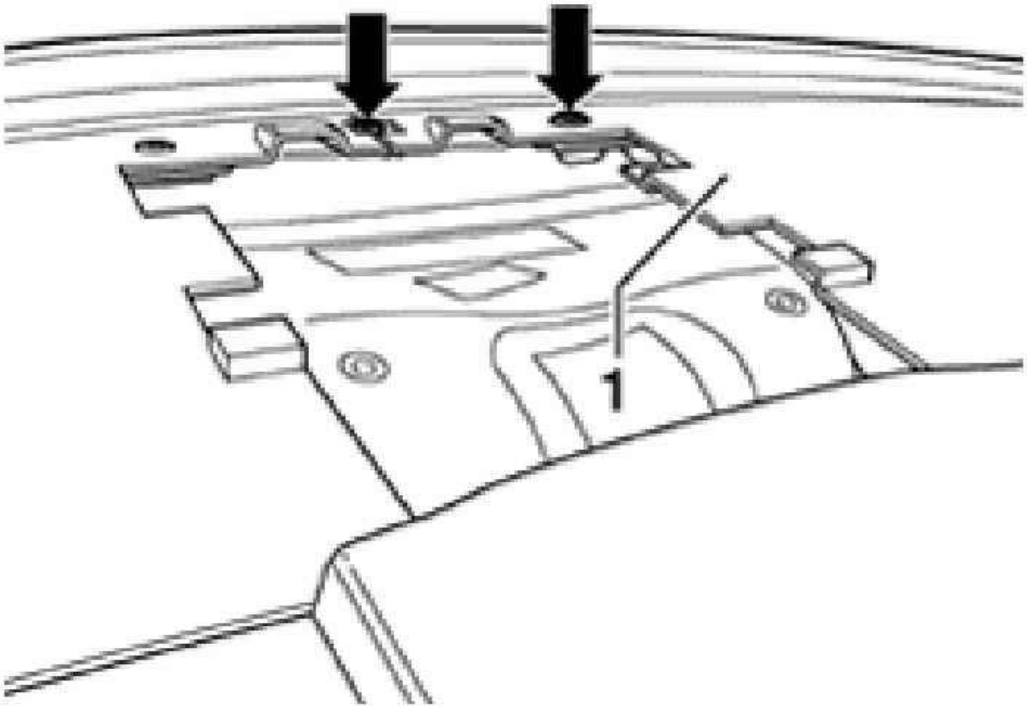

Fig. 54: Removing Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lift inner plenum chamber cover slightly.

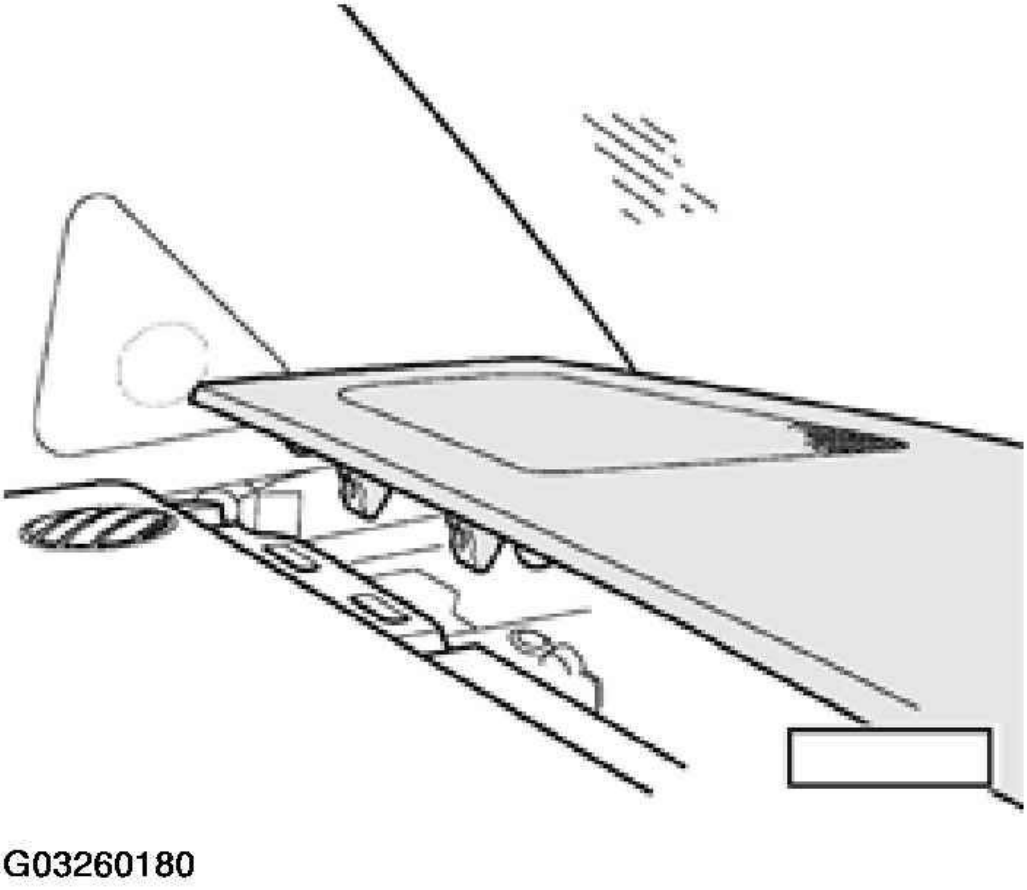

Fig. 55: Removing Inner Plenum Chamber Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Depress locking tabs and disconnect electrical connection -arrows-.

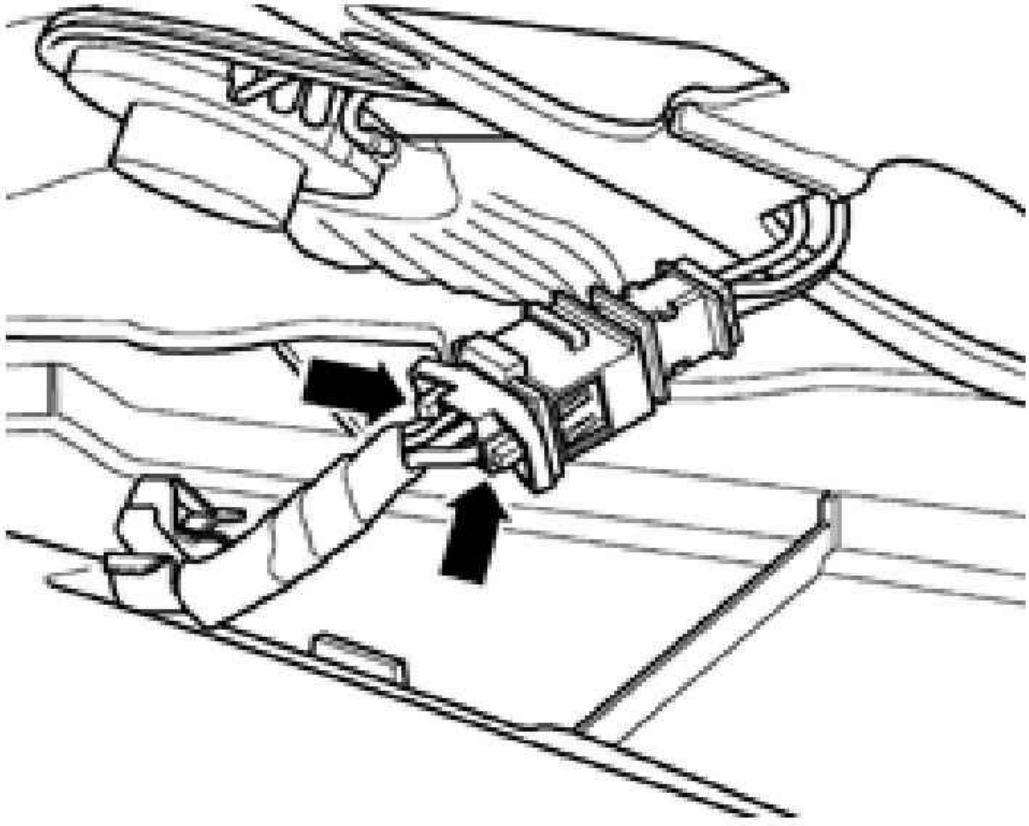

Fig. 56: Disconnecting Electrical Connection
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Carefully drill out rivets -arrows- or remove screws -arrows- as applicable and remove loudspeaker.

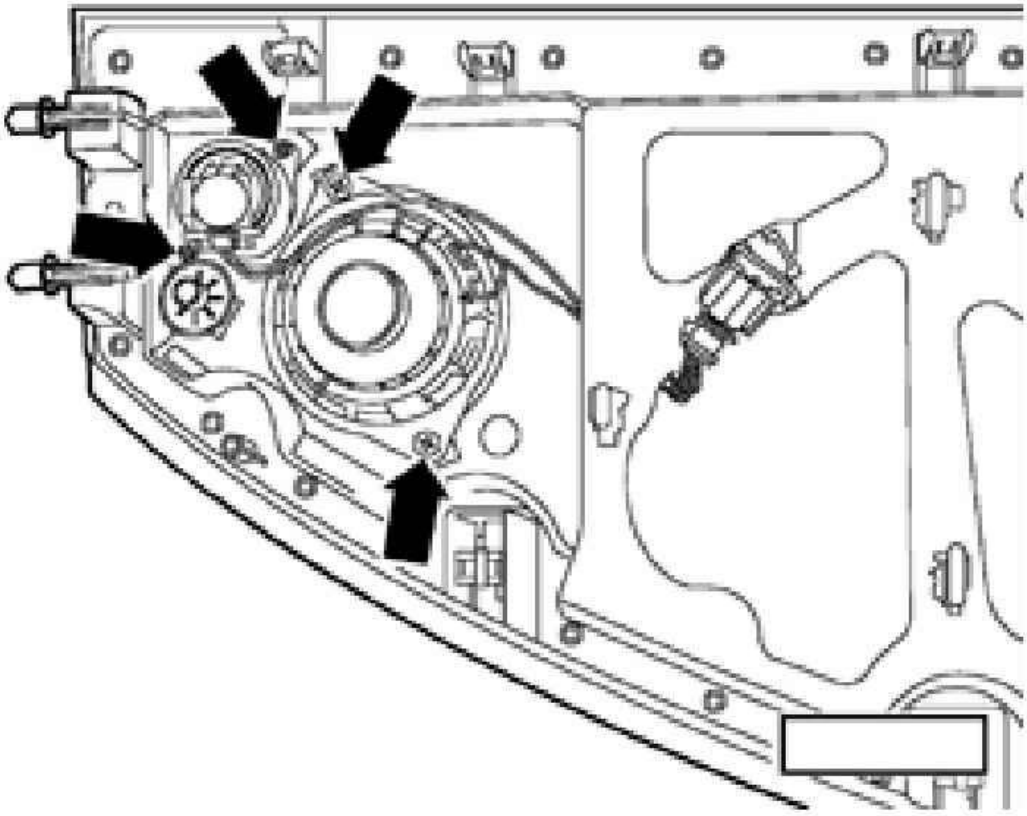

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Fig. 57: Removing Loudspeaker Rivets And Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE: Installation position.

Installing

- Install in reverse order of removal, noting the following.
  - Screws: tightening torque: 3 N.m (27 in lb)
  - Secure loudspeaker with locally available pop rivets of proper length and diameter.

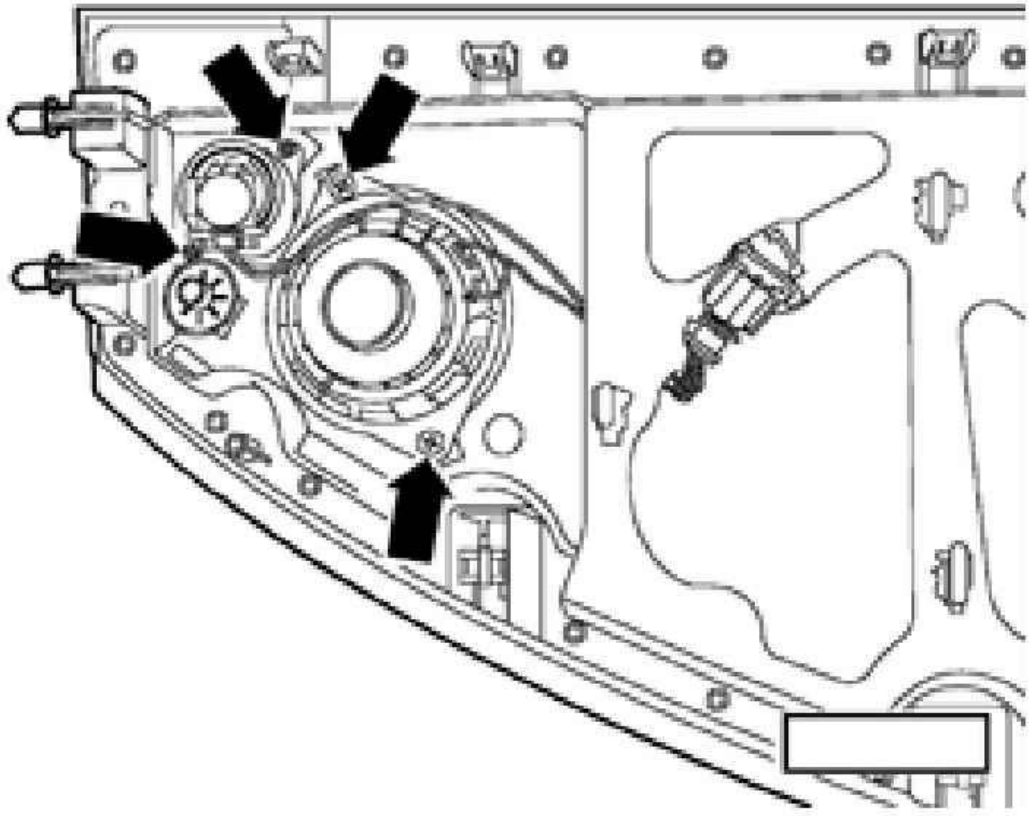


Fig. 58: Installing Loudspeaker Rivets And Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

ANTI-THEFT SECURITY CODE

GENERAL INFORMATION

All radios are equipped with an electronic anti-theft system.

The electronic anti-theft system is activated and locks the radio as soon as:

- Voltage supply (terminal 30) drops below a predetermined voltage value.
- The radio unit is disconnected from voltage supply (terminal 30) (e.g. when removing radio unit).
- Vehicle battery (terminal 30) has been disconnected.

A radio which is locked by the electronic anti-theft system, is indicated by the letters "SAFE," which appears on

the display when the radio is switched on.

ANTI-THEFT SECURITY CODE, INPUTTING

The radio will only work, if the correct code number for the anti-theft system is entered.

NOTE:

- **The anti-theft protection code can be found along with the radio number on the radio card. See Owner's Manual.**
- **For safety reasons, never leave the radio card in the car. If necessary, ask the customer for the code.**

Perform steps in the exact order given below:

- Obtain anti-theft code number from radio card.
- Switch radio on.

"SAFE" will appear on the display.

After 3 seconds, the number 1000 will appear on the display.

- Use station preset buttons (B) -1- to -4- to enter the 4digit code number.
- Press preset button -1- to enter first digit in the code number, preset button -2- for second digit and so on.
- To enter code number, press applicable button repeatedly until desired number appears on display.

  The value range for each of the 4 digits is between 0 and 9.

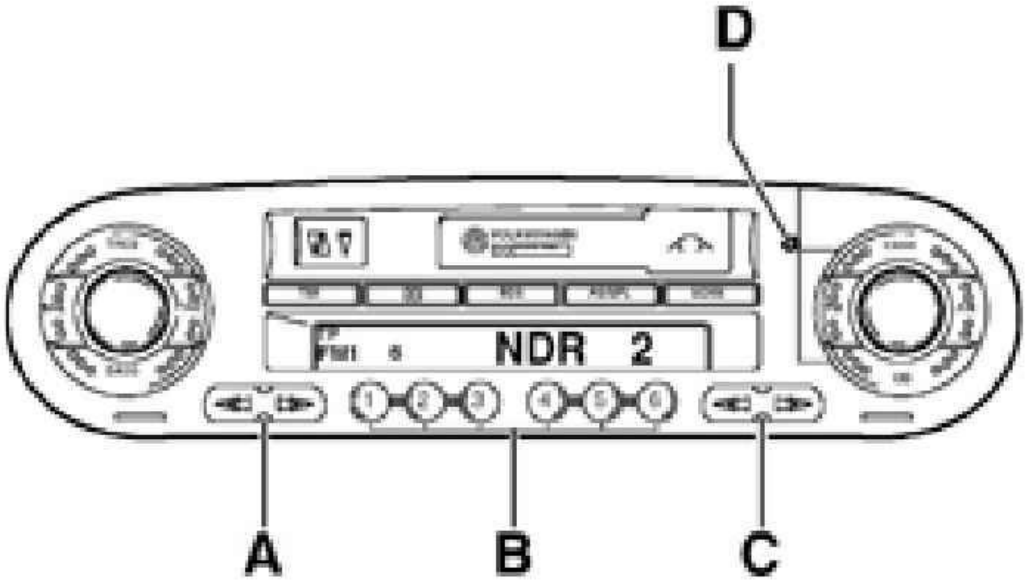


Fig. 59: Identifying Radio Buttons
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- If a button is pressed beyond desired number, the sequence will start over at 1 after 9 is pressed.
- When entire code is entered, press right side of "Seek/Track" rocker button -C- (">") for about 2 seconds, until an audible signal is heard.

NOTE:

- **If a wrong code was accidentally entered, the display will flash "SAFE" initially, and then remain on.**
- **The coding procedure may be repeated a second time (the number of coding attempts is displayed). If a wrong code is entered again, the radio will be disabled for an hour. If this happens, leave the radio ON and the key in the ignition for one hour. After the hour has elapsed, the number of attempts stops being displayed and the electronic lock can be cancelled.**
- **The cycle is: 2 attempts, 1 hour locked**

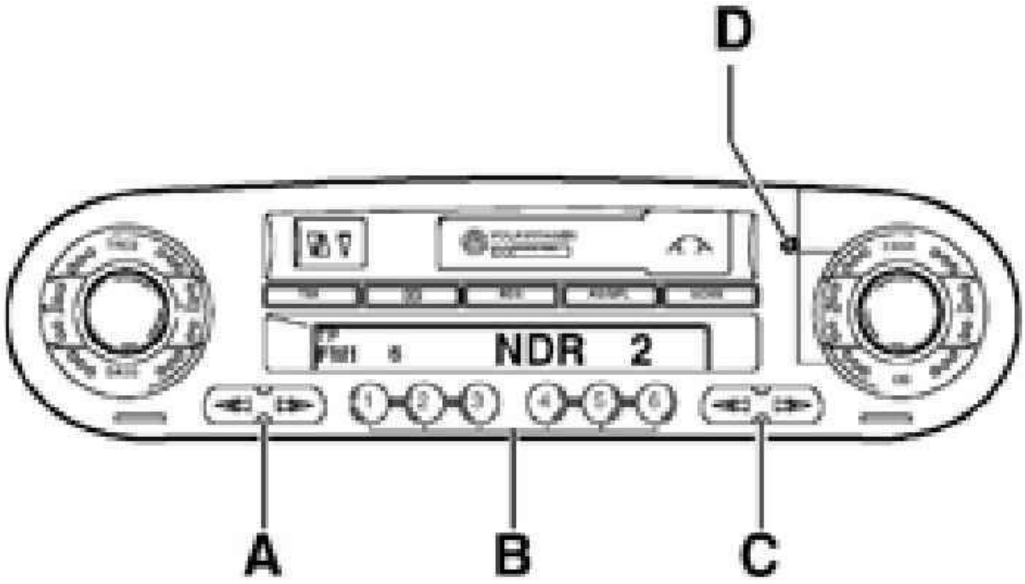


Fig. 60: Identifying Radio Buttons
Courtesy of VOLKSWAGEN UNITED STATES, INC.

ANTENNA SYSTEM

GENERAL INFORMATION

CAUTION: Before working on the electrical system:

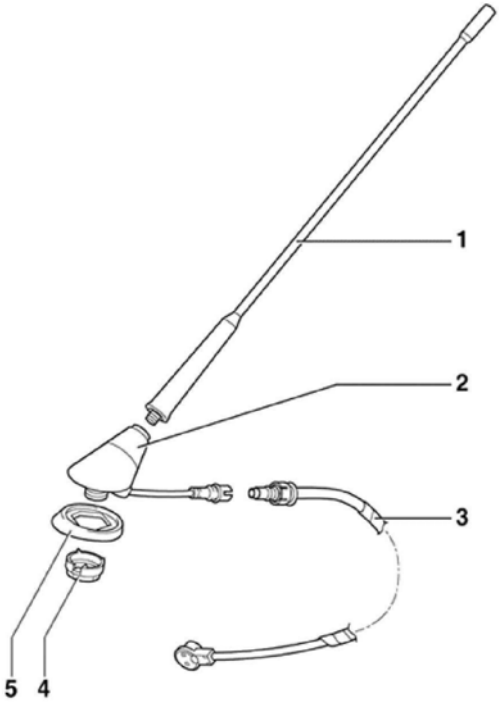
- **Determine the correct coding for the anti-theft radio.**
- **Switch ignition off.**
- **Disconnect the battery Ground (GND) strap.**
- **After reconnecting the battery, re-code and check operation of the anti-theft radio. Also check operation of the clock and the power windows according to the Repair Manual and/or the Owner's Manual.**

ROOF MOUNTED ANTENNA, ASSEMBLY

NOTE: The following list refers to items in Fig. 61 .

1. **Antenna rod**

2. **Antenna base**
    - The amplifier coil is located in the antenna base
    - Removing and installing: lower molded headlining at rear
3. **Antenna cable**
    - Routing: From roof antenna to front of center console
4. **Hex nut M14 with serrated washer**
    - Serrated washer is attached to hex nut with plastic ring
    - Apply contact grease to the inside of the roof in area of serrated washer
5. **Gasket**



1 - Antenna rod

2 - Antenna base

- The amplifier coil is located in the antenna base
- Removing and installing: lower molded headlining at rear

3 - Antenna cable

- Routing: From roof antenna to front of center console

4 - Hex nut M14 with serrated washer

- Serrated washer is attached to hex nut with plastic ring
- Apply contact grease to the inside of the roof in area of serrated washer

5 - Gasket

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Fig. 61: Exploded View Of Roof Mounted Antenna
Courtesy of VOLKSWAGEN UNITED STATES, INC.

RECEPTION INTERFERENCE, SUPPRESSION MEASURES

Most electrical consumers and features in the vehicle are developed to include radio interference measures. These include:

- Coolant fan -V7-
- Windshield wiper motor -V-
- Rear window wiper motor -V12-

Additional Ground (GND) connections on vehicle with radio or prepared for radio:

- Ground (GND) strap from left wheel housing to fender

CD CHANGER

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The optional CD changer wiring and mounting is pre-installed in production. Installation applications:

- m.y. 1998: H, See **CD CHANGER - M.Y. 1988, INSTALLING** .
- m.y. 1999 through 07.02 production:, See **CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING** .
- from 08.02 production:, See **CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING** .

CD CHANGER - M.Y. 1988, INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**

- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory-approved service installation of Volkswagen CD changers into m.y. 1998 New Beetle models equipped with "Premium V" radios.

CD changer: 1J5 035 111

Installation kit: 1 C0 098 201

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**

Installed position: Left rear of luggage compartment, just behind folding rear seat.

CD prep (changer cable and connector routing) is visible from inside luggage compartment, at left rear wheel well.

- Lift luggage compartment carpet.

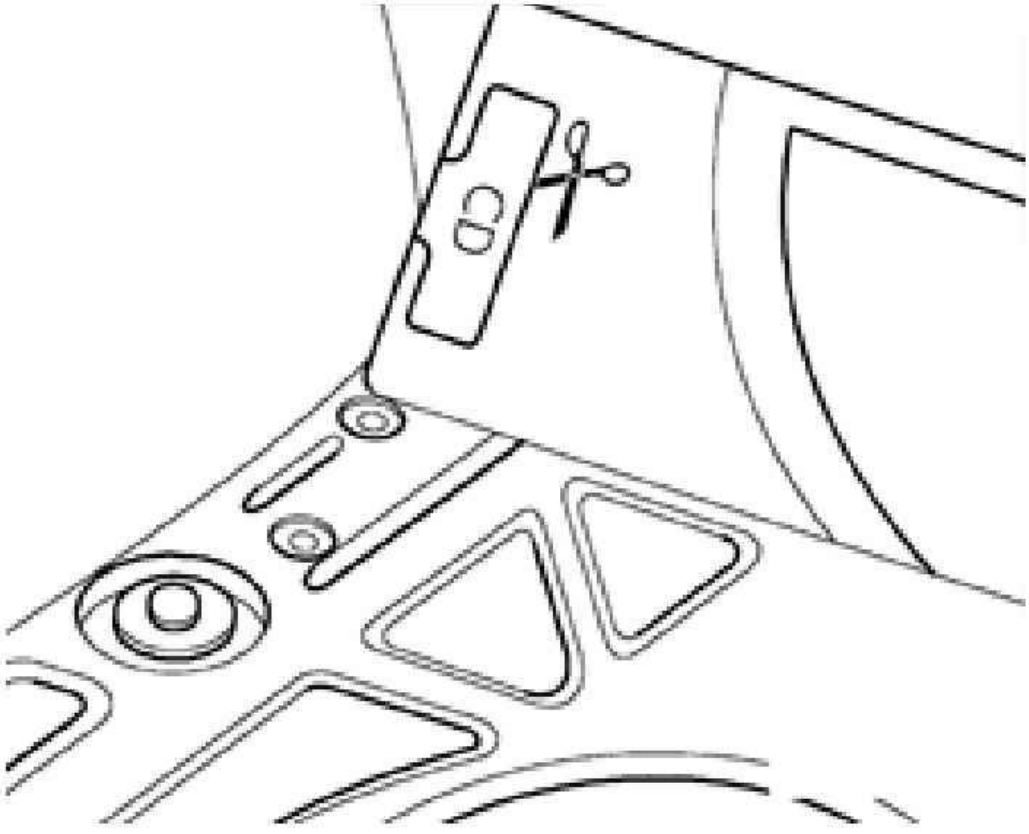

Fig. 62: Lifting Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note location of three CD changer bracket mounting holes -arrows-.

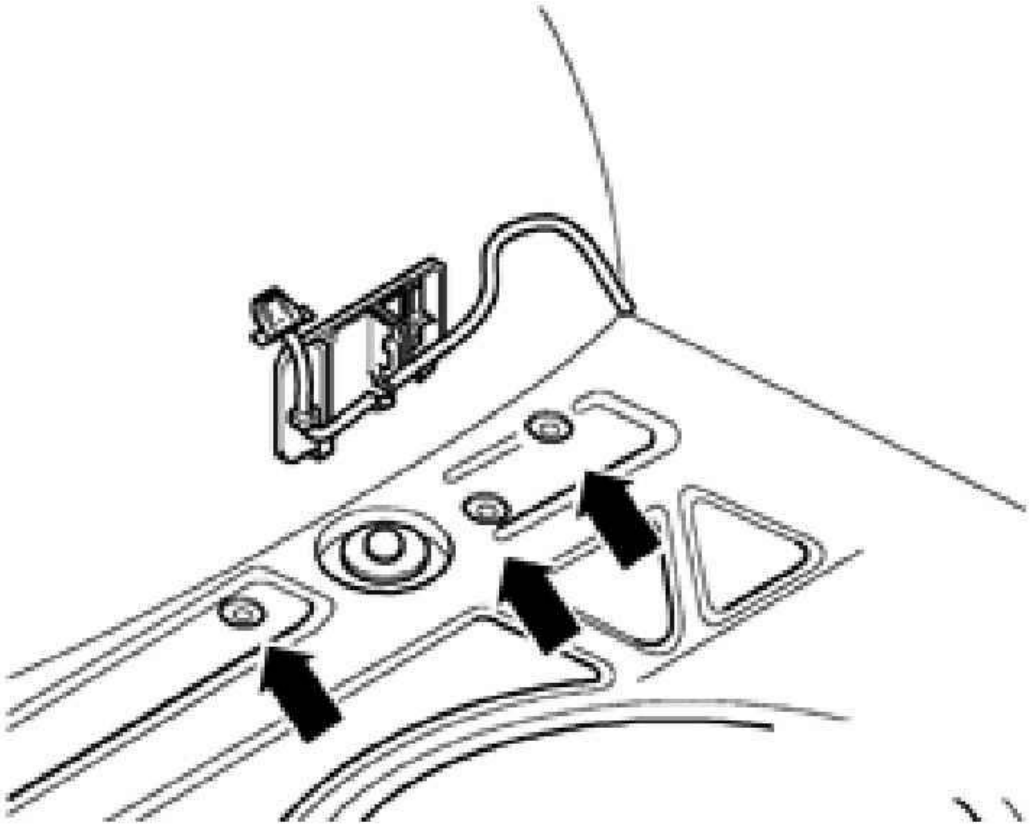

Fig. 63: Identifying Three CD Changer Bracket Mounting Holes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Depending on production, one of two different types of CD changer (cable) prep may be used.

Version 1

CD changer connector -1- and cable secured by clip on left side of luggage compartment.

- Remove clip -arrow- and fold back connector.

Version 2

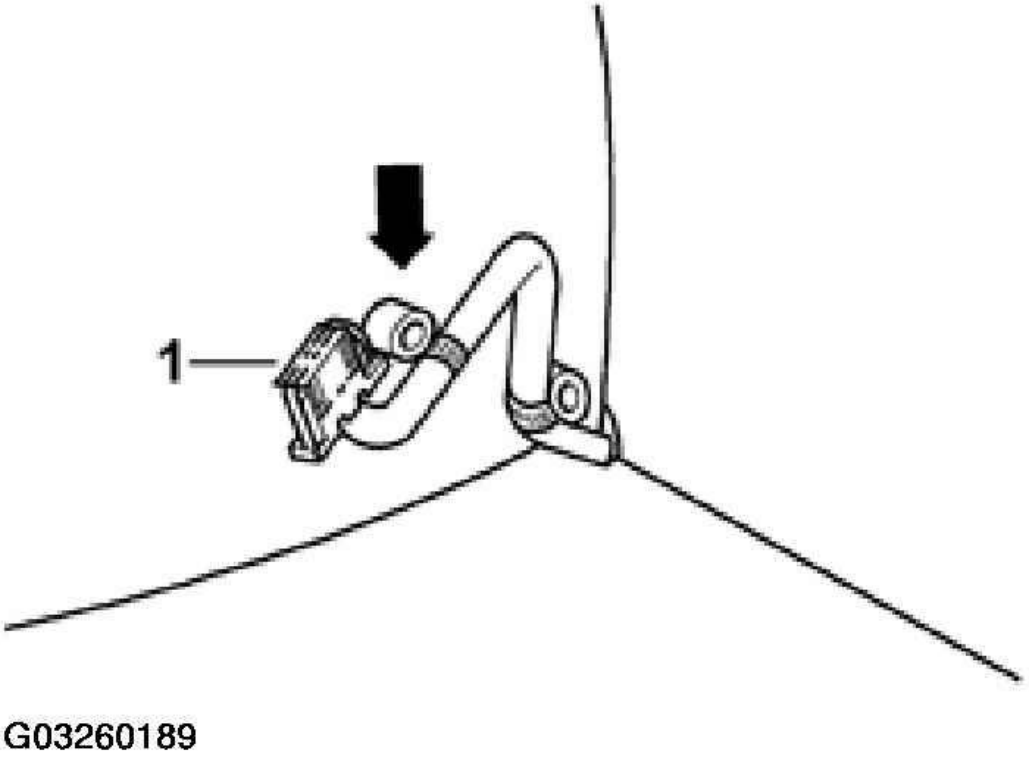

Fig. 64: Identifying CD Changer Connector And Secure Clip
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD changer connector/harness secured inside cover -arrow-.

- Unclip cover and pull out harness connector.

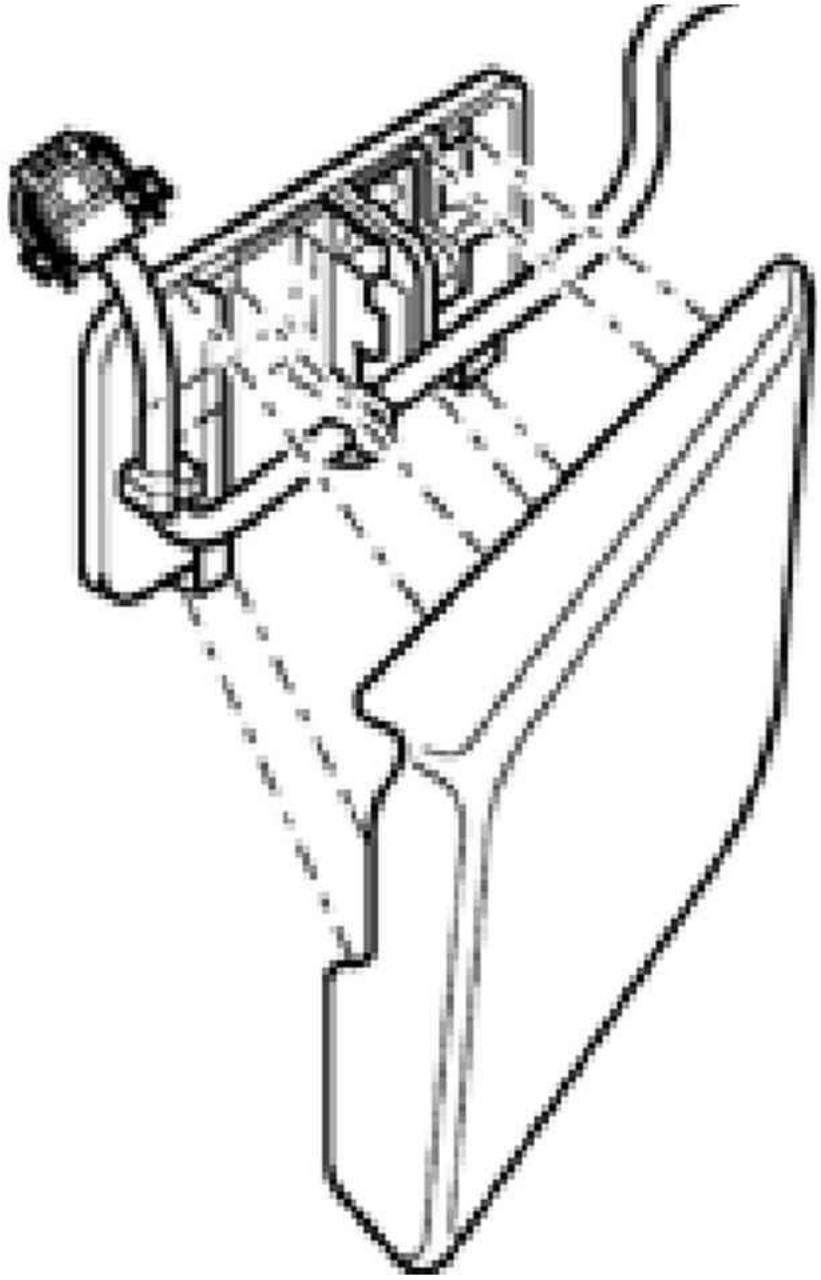

Fig. 65: Removing CD Changer Connector/Harness Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note the cut marking on the back side of left luggage compartment carpet.

- Cut carpet along marked area -arrow-.

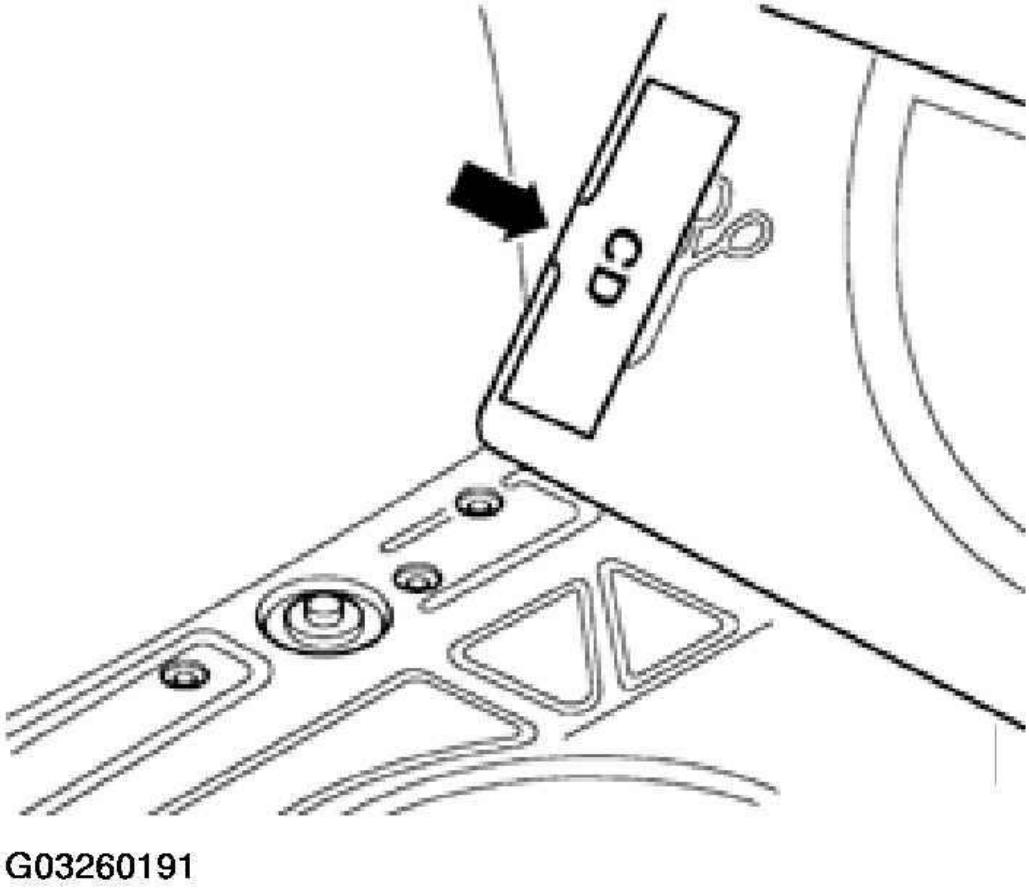

Fig. 66: Cuting Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Refit luggage compartment carpet (note area removed).

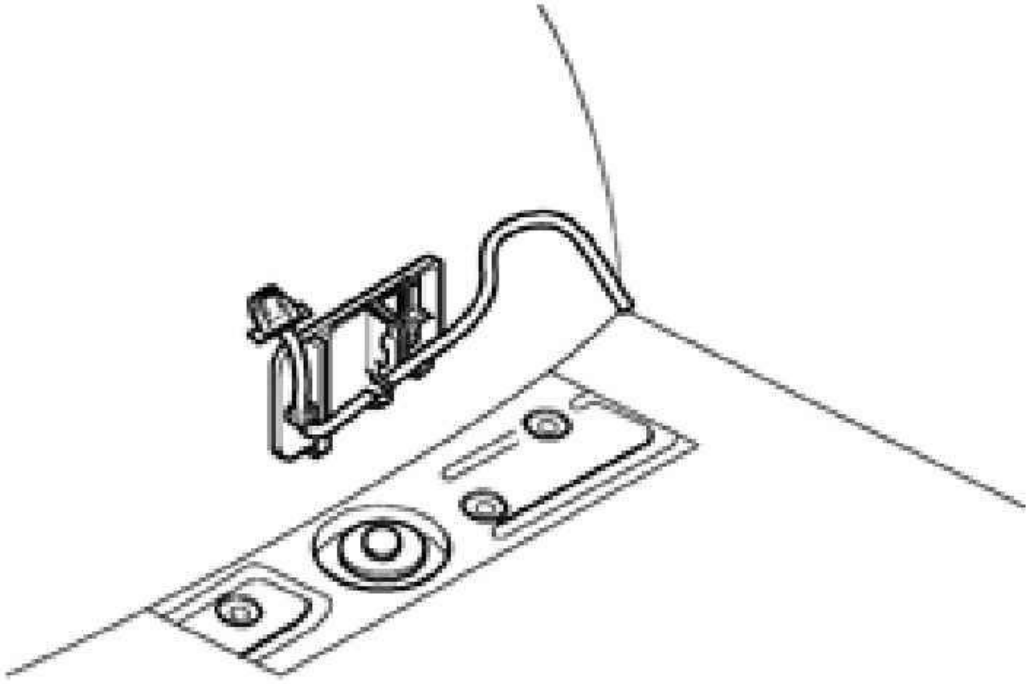

Fig. 67: Installing Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mount CD changer bracket -1- to floor using hex screws -2-.
- Tightening torque: 4.5 N.m (39 in lb)

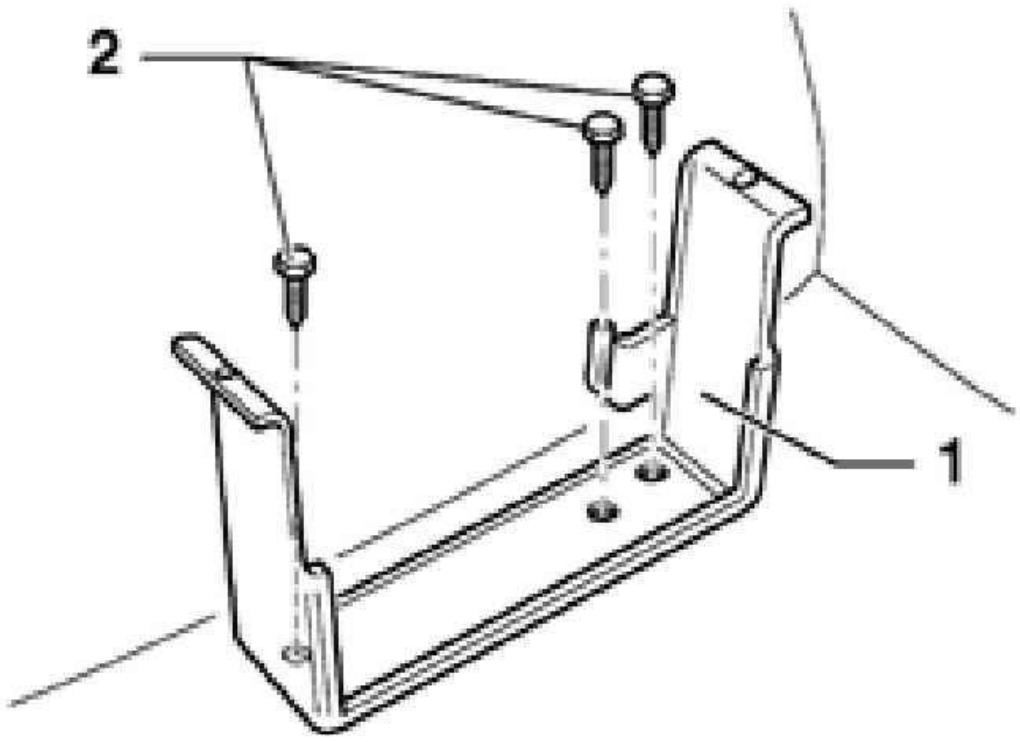

Fig. 68: Installing CD Changer Bracket Hex Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD changer, preparation

- Check settings of both CD changer angle of installation selection switches. Both switches must be set the the vertical ("V") position. Switches are located on the side and bottom of CD changer.

NOTE:

- **CD playback will skip if switches are not set correctly.**
- **Always check/set switches prior to CD installation.**
- **Switches must move completely to their end positions.**

- If switches need to be reset, loosen the securing screws, slide the switch towards the top into the "V" position and tighten screw.
  - Tightening torque: 2 N.m (18 in lb)
- Cover selector switch openings with self adhesive seals (if supplied).

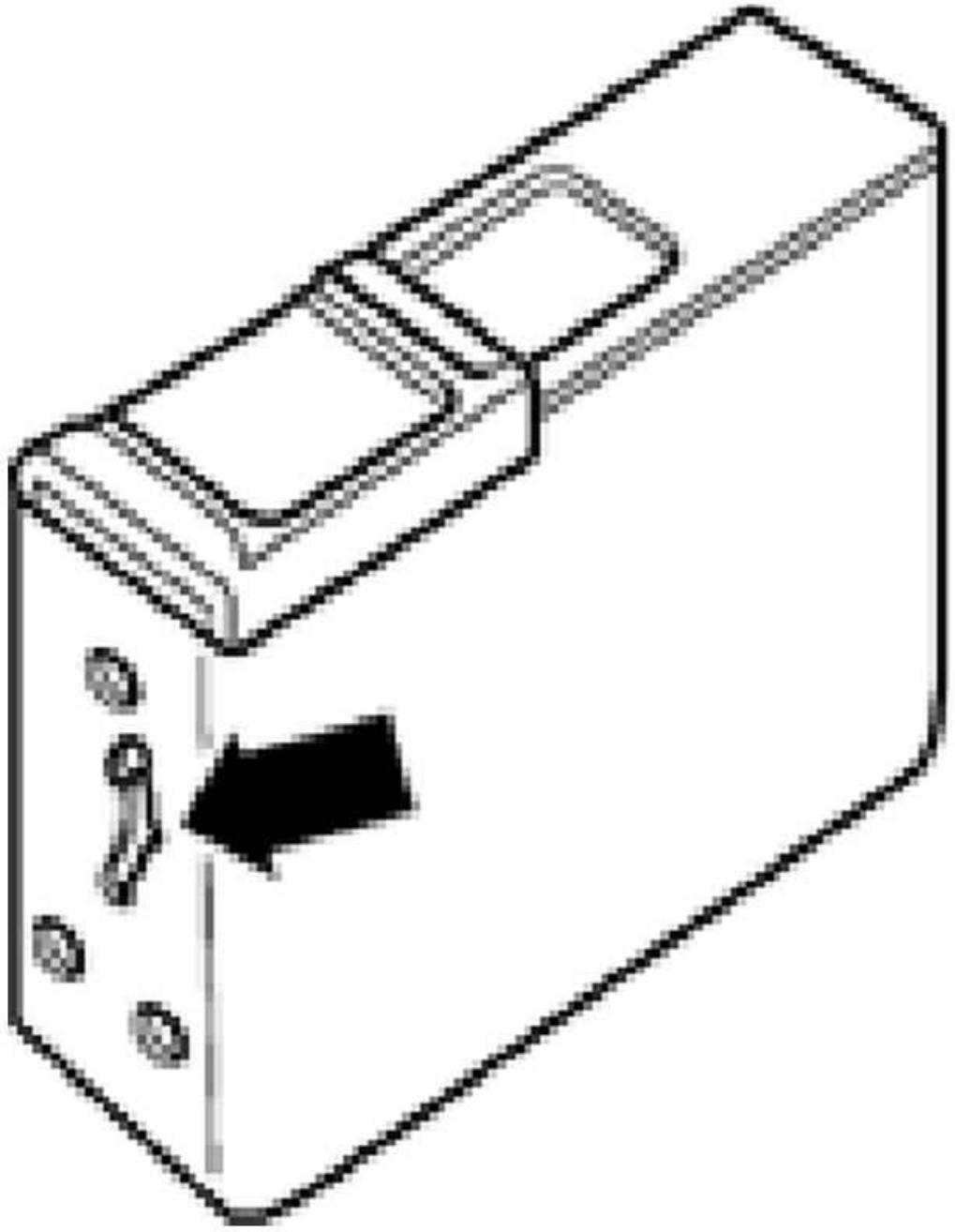

Fig. 69: Identifying CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach both support brackets -1- to CD changer with screws -2-..
  - Tightening torque: 3 N.m (27 in lb)
- Connect CD changer harness cable connector.
- Route CD changer cable and clip connector -1- into the connector support piece located on the CD changer bracket -arrow-.

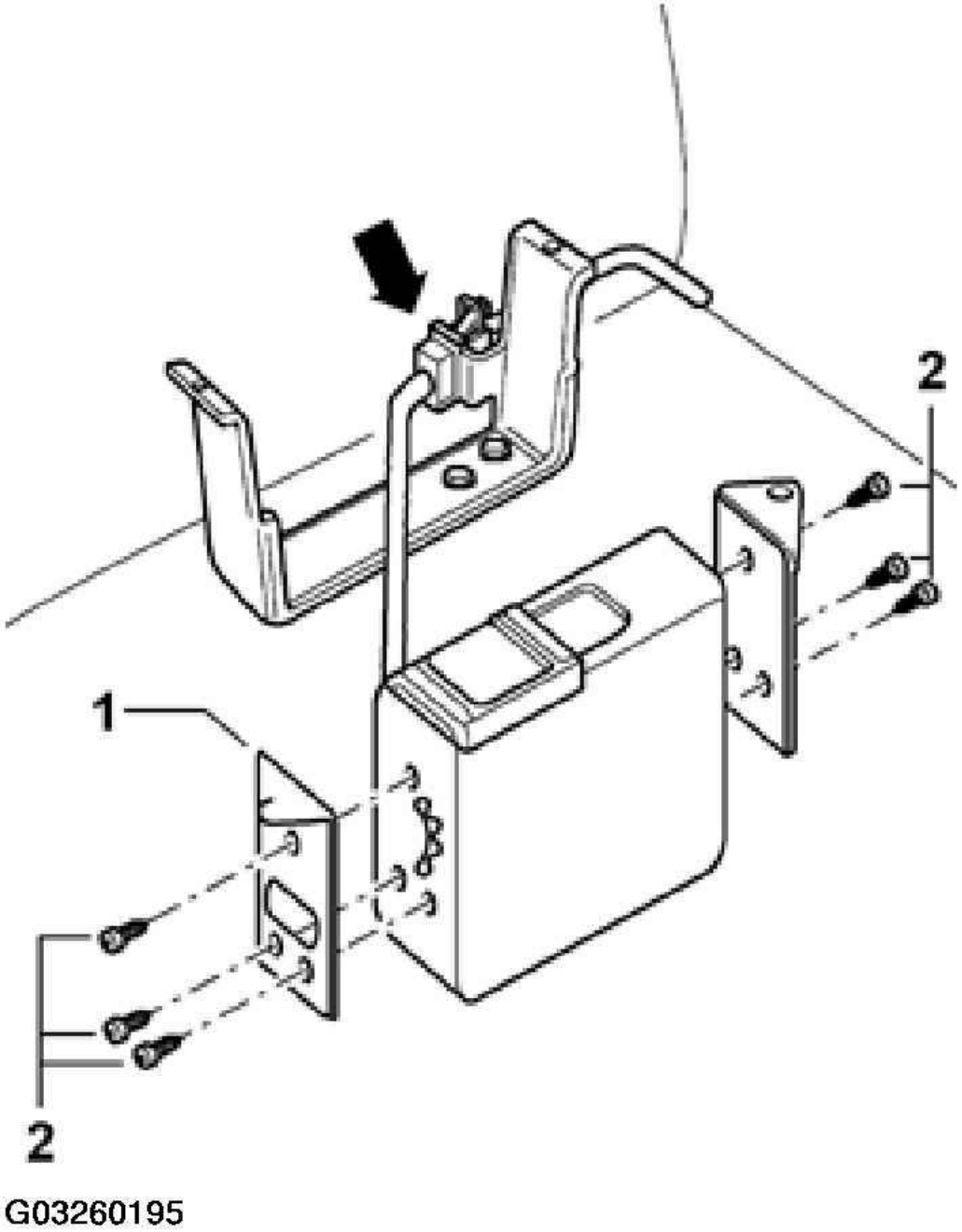

Fig. 70: Installing Both Support Brackets To CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Slide CD changer into CD changer bracket from the top ensuring that the CD changer connector is

securely located in the bracket -arrow-.

- Install CD changer protective cover -1-, ensuring the tips at the bottom of the cover align with their slots in the CD changer bracket.
- Secure cover and bracket with screws from top.
  - Tightening torque: 3 N.m (27 in lb)
- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST), See **Code Control Module (function 07)**

NOTE:

- **Radio/CD OBD function is inoperative if radio system is not coded for CD operation.**

- Refer to and check proper operation of CD changer.

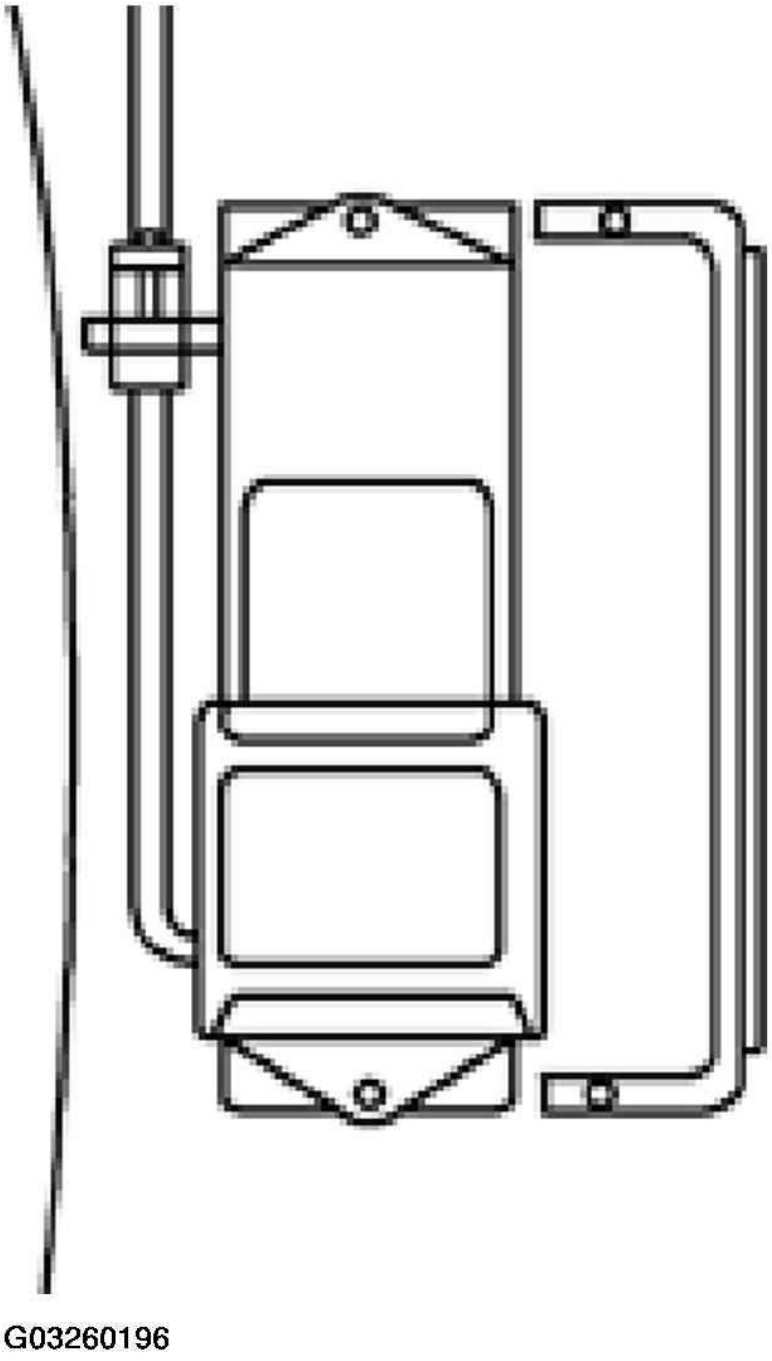

Fig. 71: Installing CD Changer Into CD Changer Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

CD CHANGER - M.Y. 1999 THROUGH 07.02 PRODUCTION, INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory approved service installation of Volkswagen CD changers into New Beetle models from m.y. 1999 through 07.02 production equipped with "Premium V" or "Premium V - Monsoon" radios.

CD changer: 1J6 035 111

Installation kit: 1 C0 098 201

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**

Installed position: Left rear of luggage compartment, just behind folding rear seat.

CD prep (changer cable and connector routing) visible from inside luggage compartment, at left rear wheel well.

- Lift luggage compartment carpet and cut as shown on carpet back.

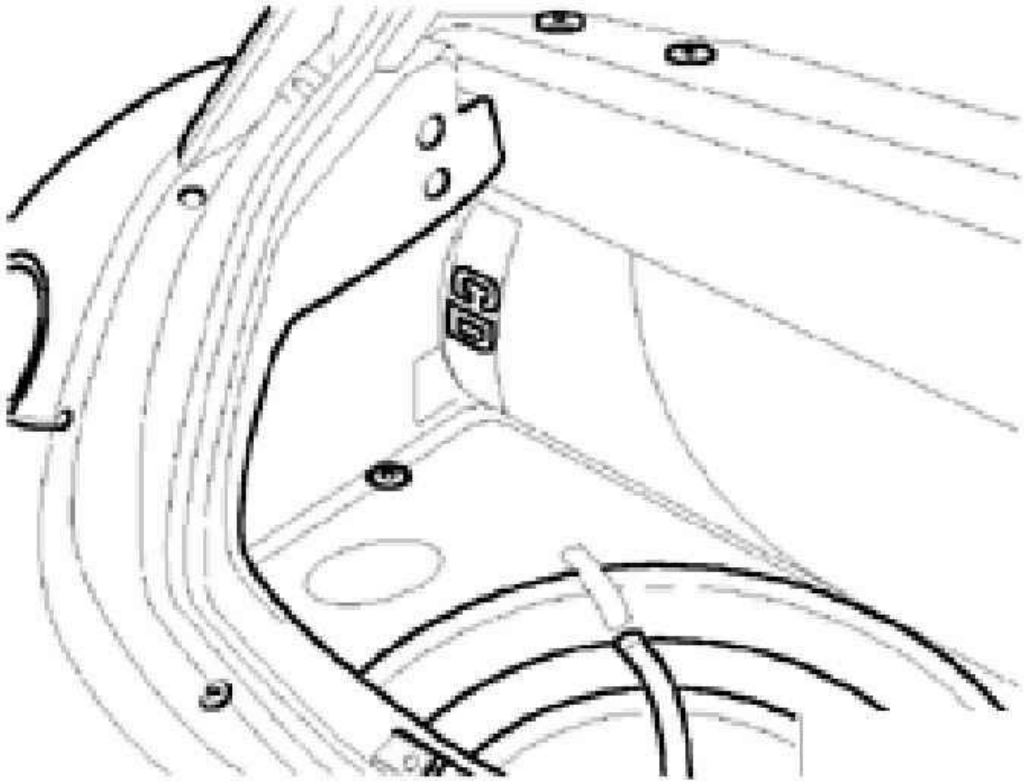

Fig. 72: Lifting Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Note location of three CD changer bracket mounting holes -arrows-.

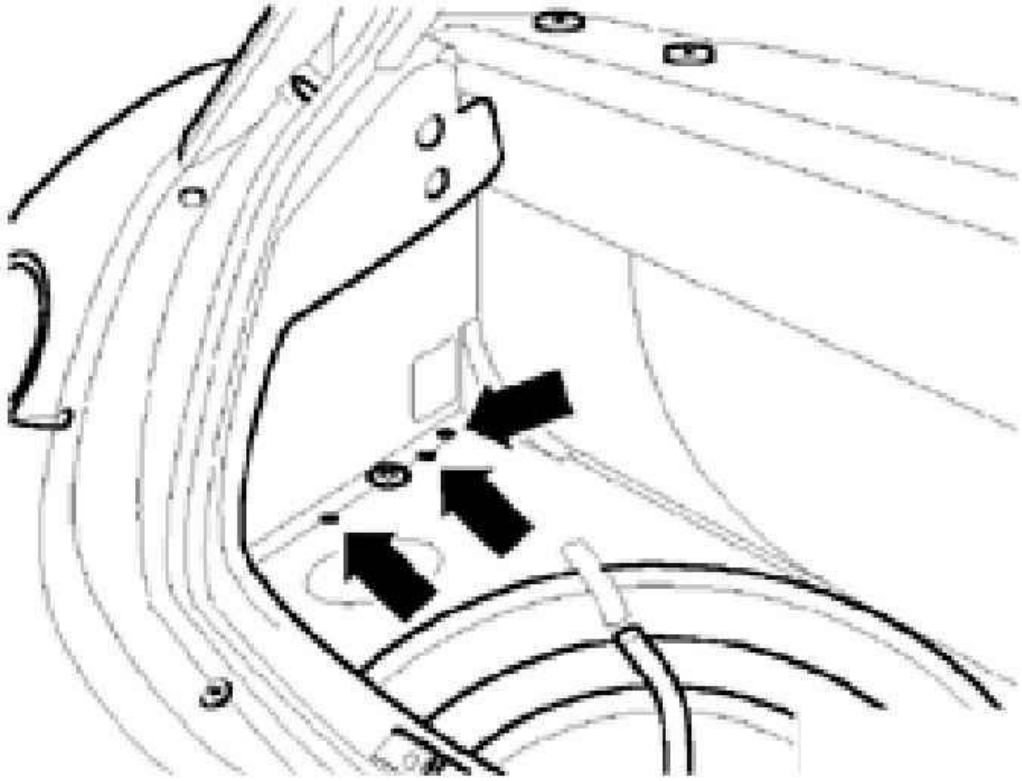

Fig. 73: Identifying Three CD Changer Bracket Mounting Holes
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove CD changer harness connector cover.
- Release harness connector as shown.

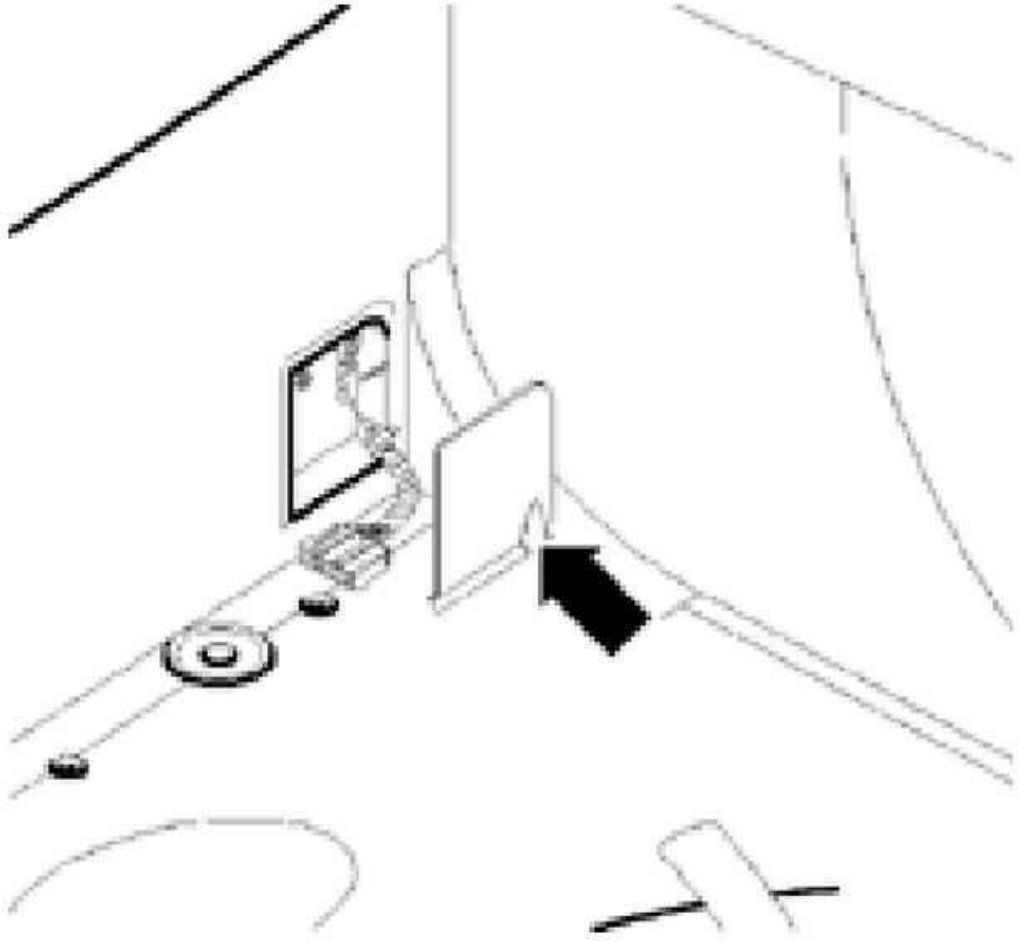

Fig. 74: Removing CD Changer Harness Connector Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Locate cutting mark inside cover.
- Cut marked area as shown -arrow-.
- Refit luggage compartment carpet (note area removed).

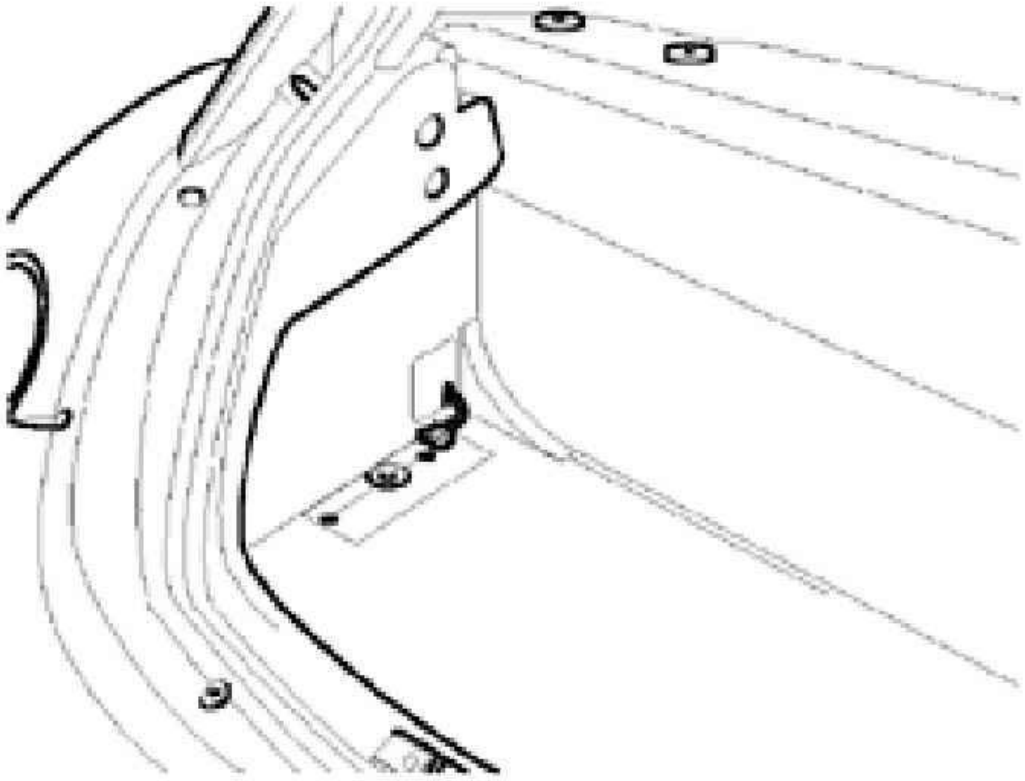

Fig. 75: Installing Luggage Compartment Carpet
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Mount CD changer bracket -1- to floor using hex screws -2-.
  - Tightening torque: 4.5 N.m (39 in lb)

CD changer, preparation

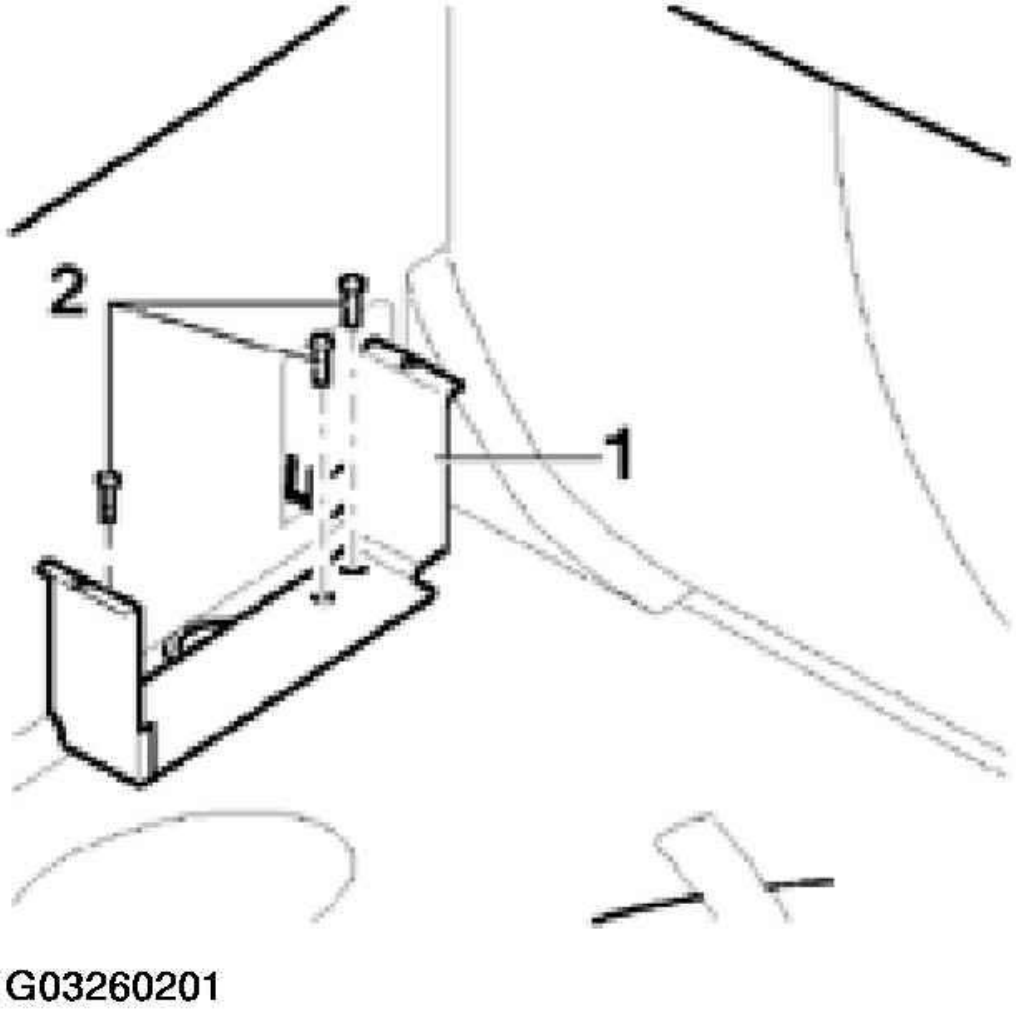

Fig. 76: Installing CD Changer Bracket To Floor With Hex Screws
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Verify both CD changer position settings. Settings must be located on top.

  If not, loosen lateral screws, slide them toward top into "V" position and tighten.

  - Tightening torque: 3 N.m (27 in lb)

NOTE:

- **CD playback will skip if switches are not set correctly.**
- **Always check/set switches prior to CD installation.**

- **Switches must move completely to their end positions.**

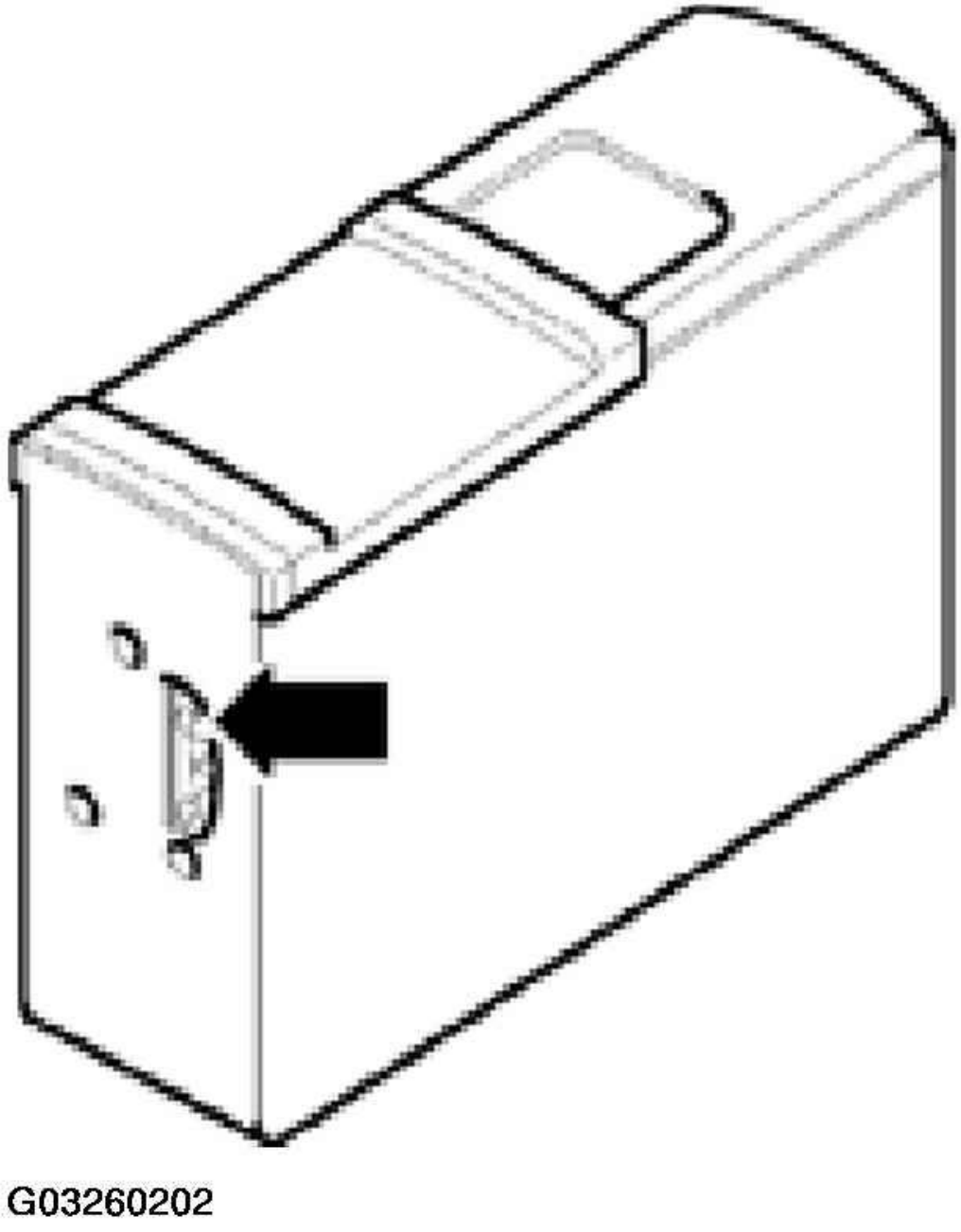

Fig. 77: View Of CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach support -1- to CD, install with screws -2-.
  - Tightening torque: 3 N.m (27 in lb)
- Connect CD Changer harness cable connector (arrow).
- Place connectors -1- in bracket and CD Changer in bracket.

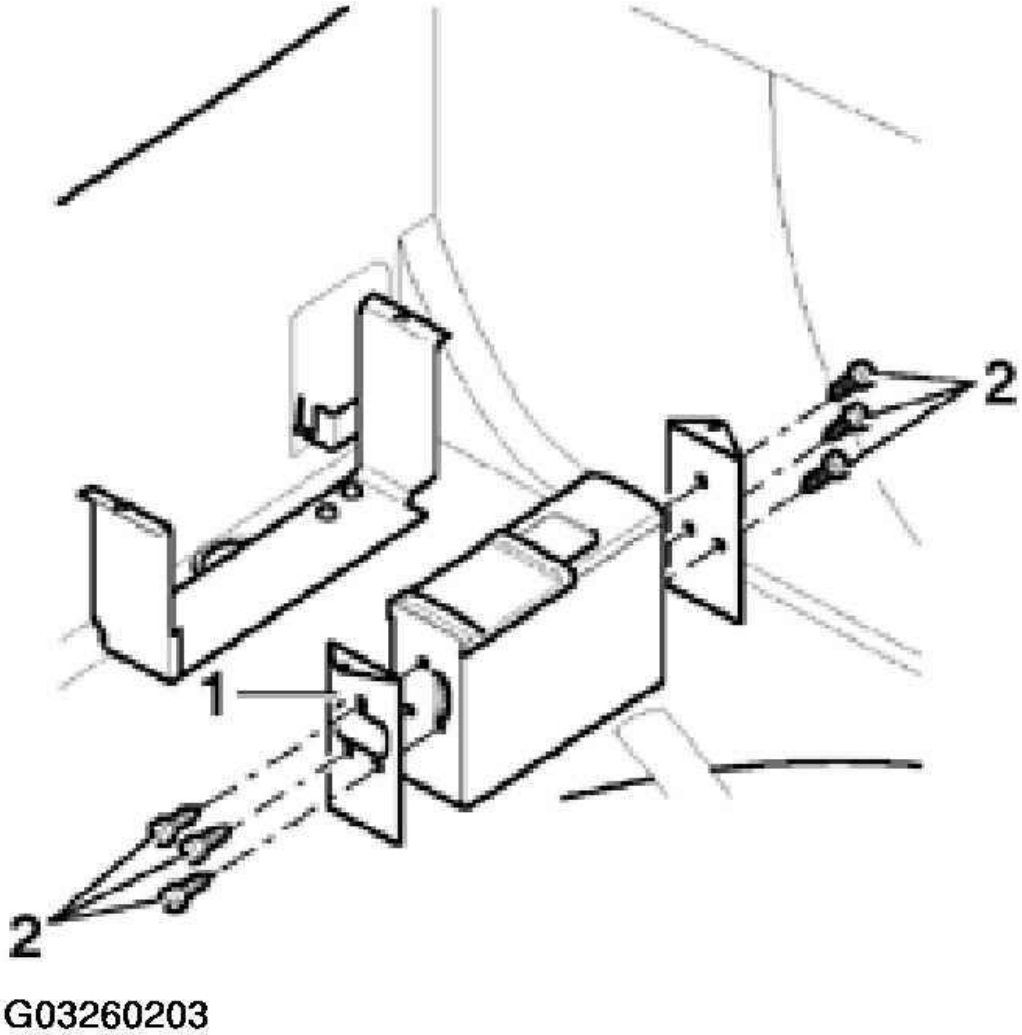

Fig. 78: Installing Support To CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Connectors should be in same side of harness support (arrow).

- Install CD cover -1- and ensure tips at bottom of cover align with slots in bracket.

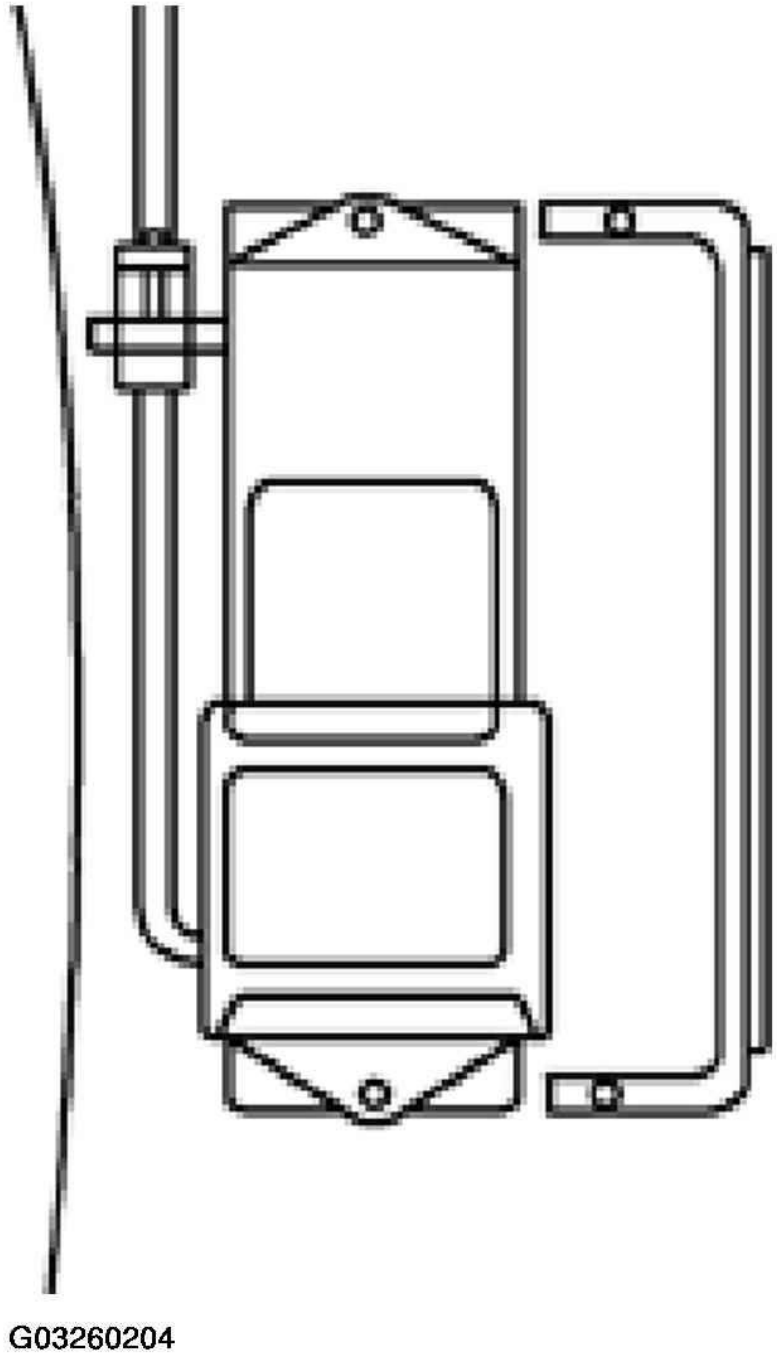

Fig. 79: Installing CD Cover
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Secure with phillips screws on top.

- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST), See **Code Control Module (function 07)**

NOTE: Radio/CD OBD function is inoperative if radio system is not coded for CD operation.

- Refer to Radio/CD changer owner's guide and check proper operation of CD changer.

CD CHANGER - FROM 08.02 PRODUCTION, INSTALLING AND REMOVING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

The following describes the factory approved service installation (and /or removal) of Volkswagen CD changers into all New Beetle models from 08.02 production, equipped with "Premium V" or "Premium V - Monsoon" radios and appropriate center console.

CD changer: 1J0 057110, Harness: 3B0 051 592B, Storage box/coin holder: 1C0 857 058A Parts catalog.

CAUTION:

- **Part numbers are for reference only. Always check with your Parts Department for the most up to date information.**
- **Always confirm CD changer and radio compatibility with your Parts Department.**

Removing previously installed unit

See **REMOVING** .

Installing

NOTE:

- **Carefully review all of the following instructions before proceeding with installation.**
- **Never install CD changer in a location, position, or manner other than specified by these instructions.**
- **Radio must be coded in order to support CD changer functions. After**

installing new CD unit, input appropriate radio coding using On Board Diagnostic program: "Code control module", function 07.

See Code Control Module (function 07) .

- **If the CD changer plays commercially available CDs, but not home recorded CDs, the CD changer is not malfunctioning. Replacement of the CD changer is not warranted.**
- **No mixed CDs (CDs with computer data and music stored together) can be played on the CD changer.**

Installed position

Central console under armrest.

CD preparation cable connection may be visible from top of central console with open armrest velour storage tray removed.

- Lift center armrest to fully open position.
- Remove velour tray by pulling upwards -arrows-.
- Open power outlet compartment or ashtray (where applicable) at rear of console and remove power outlet housing from mounting.
- Unplug power outlet cable by opening the top of the power outlet housing. Power outlet and housing will be completely released (no wires need to be unplugged separately when vehicle is equipped with ashtray).
- Remove rear cover lid from console

  See **STORAGE, COVERS AND TRIMS** .

- Move front passenger seat to its most forward position and tilt backrest forward.
- Remove right console side cover trim. See **STORAGE, COVERS AND TRIMS** .

  .

- Locate CD preparation cable inside center console.
- Insert coin holder/storage box -1- in small area vacated by velour tray. Flat border must face inwards.

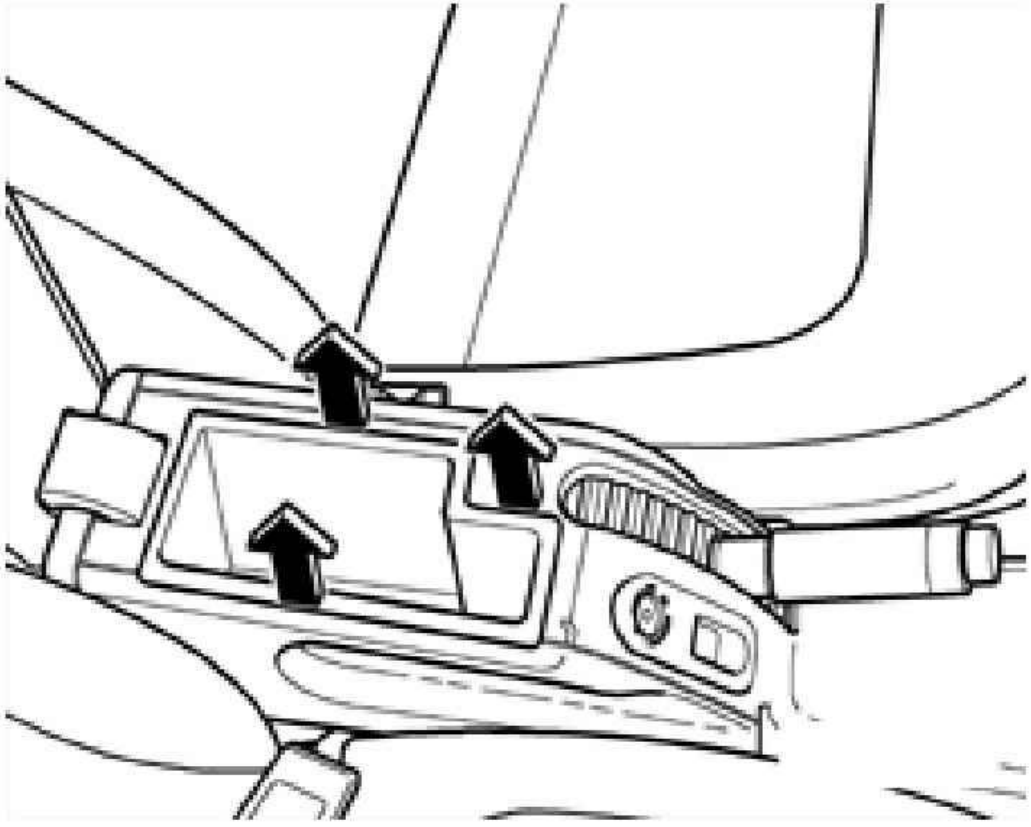

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Fig. 80: Removing Velour Tray
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Then slide/lower CD changer -2- into opening until the mounting clips are felt to engage. Also note the following:

NOTE: CD changer installation orientation: CD slot faces passenger's seat, buttons face driver's seat.

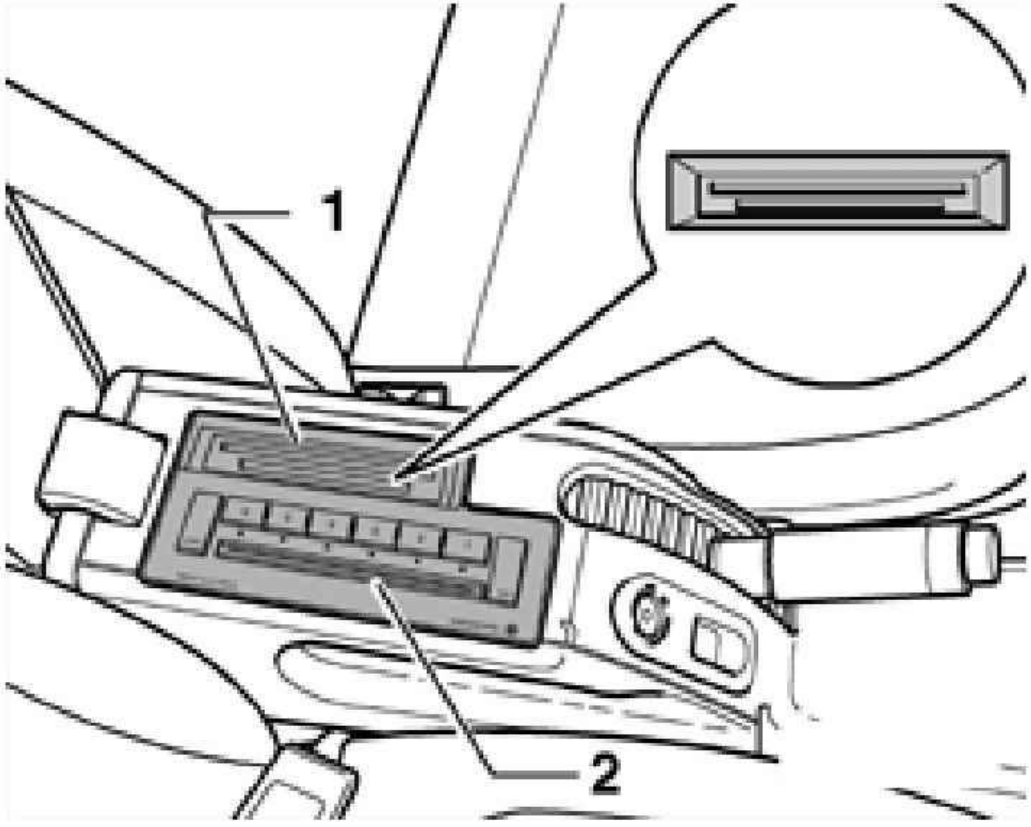


Fig. 81: Identifying Coin Holder/Storage Box
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Unclip and remove CD preparation terminal blank connection and discard.
- Use adapter cable to lengthen harness where applicable
- Connect CD changer harness connection -1- to CD preparation cable -2- located earlier.

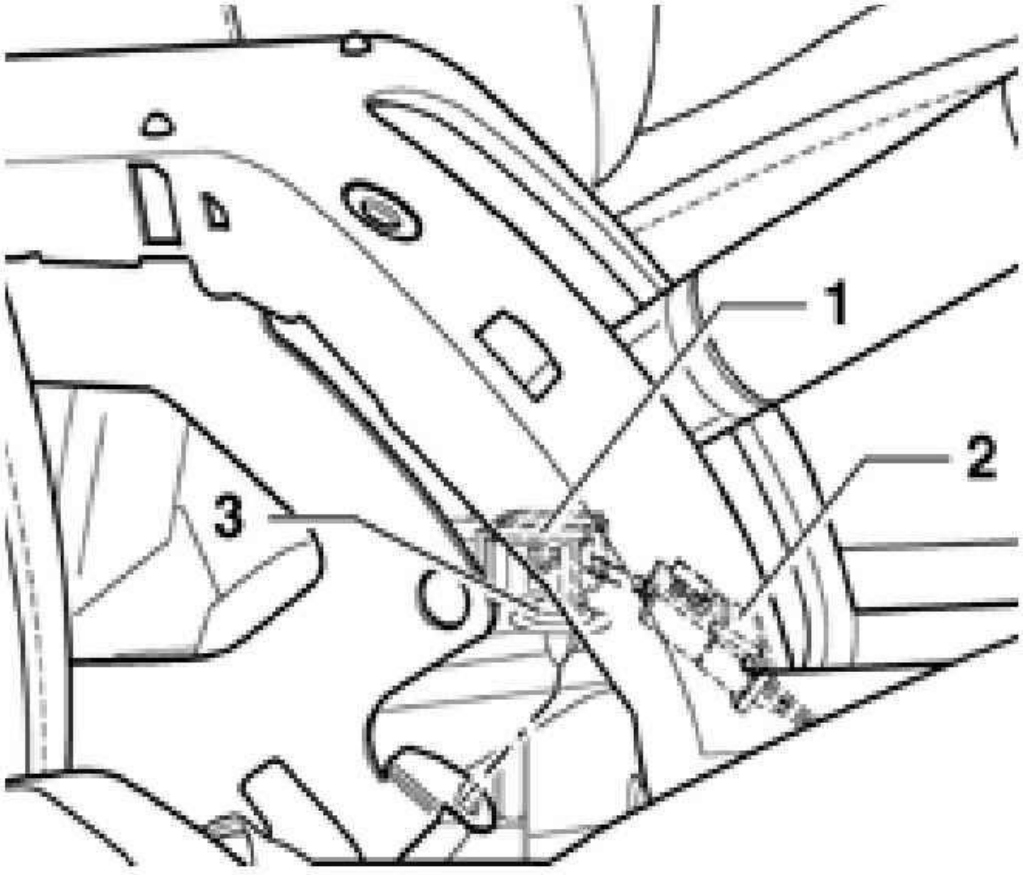


Fig. 82: Connecting CD Changer Harness Connection
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Attach completed connection -1- to clip -3-.

CAUTION:
- **Ensure proper electrical connection is made - check for terminal push-outs.**
- **In order to avoid noises and rattles, always ensure connector assembly with harness is properly secured.**

- Clip connector/clip assembly to inner console frame -1-.

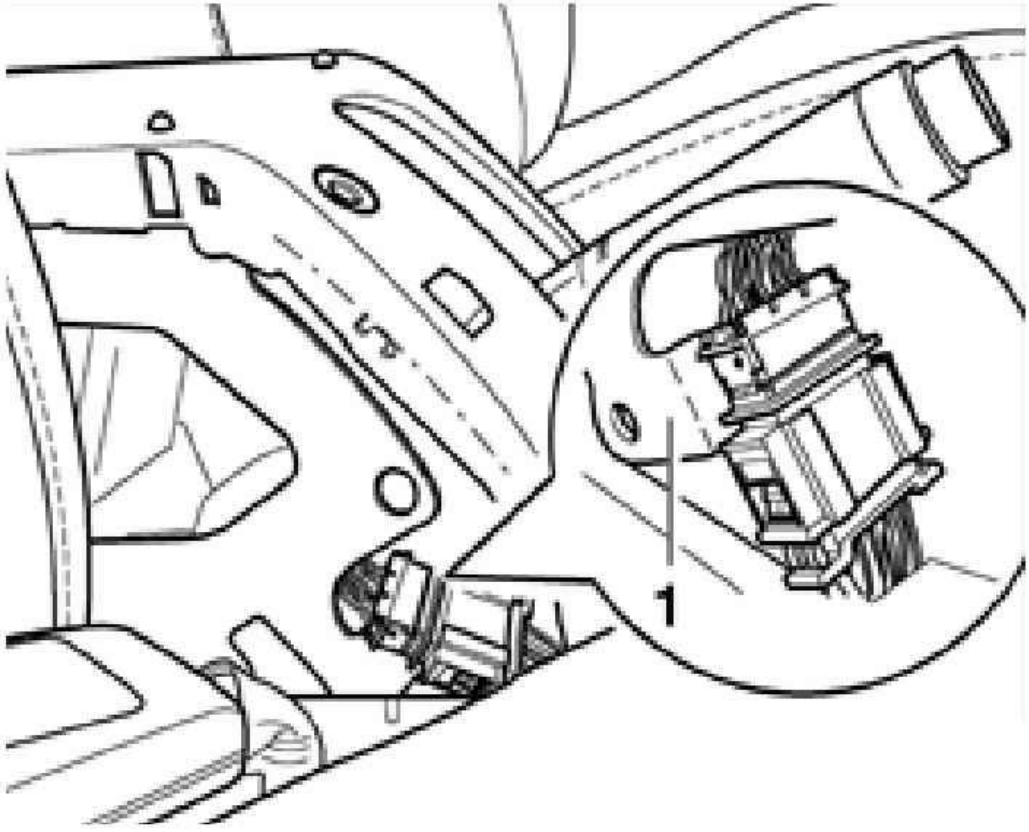


Fig. 83: Clip Connector/Clip Assembly To Inner Console Frame
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Continue with reassembly of all console-mounted components and trim in reverse order of removal
- Code "Sound System" for CD operation using VAG 1551/1552 Scan Tool (ST) **Radio system "Premium V" and "Premium V - Monsoon", On Board Diagnostic (OBD)**

NOTE: Radio/CD OBD function is inoperative if radio system is not coded for CD operation.

- Refer to Radio/CD changer owner's guide and check proper operation of CD changer.

Removing

Special tools, testers and auxiliary items needed.

- Radio removal tool 3316 (two identical pieces).

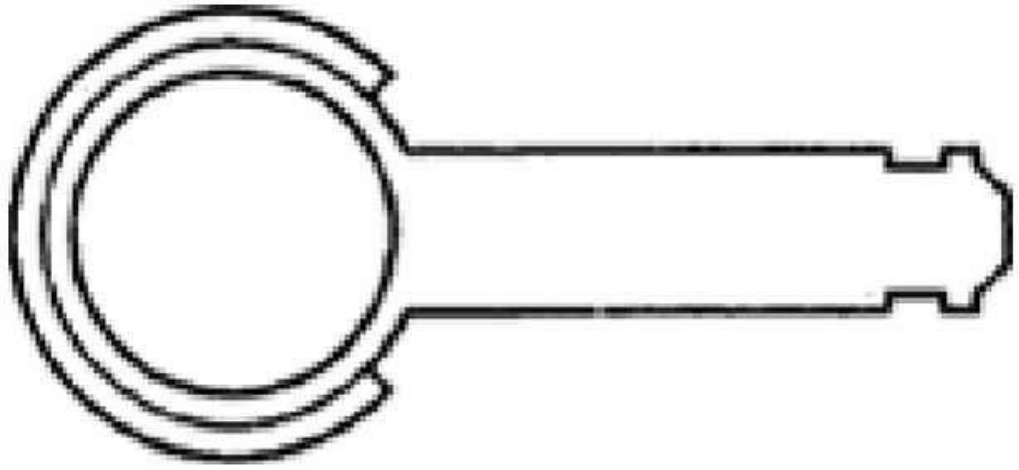


Fig. 84: Identifying Radio Removal Tool 3316
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Removing

- Insert CD changer removal tools into CD changer as illustrated -arrow- until they are felt to engage.

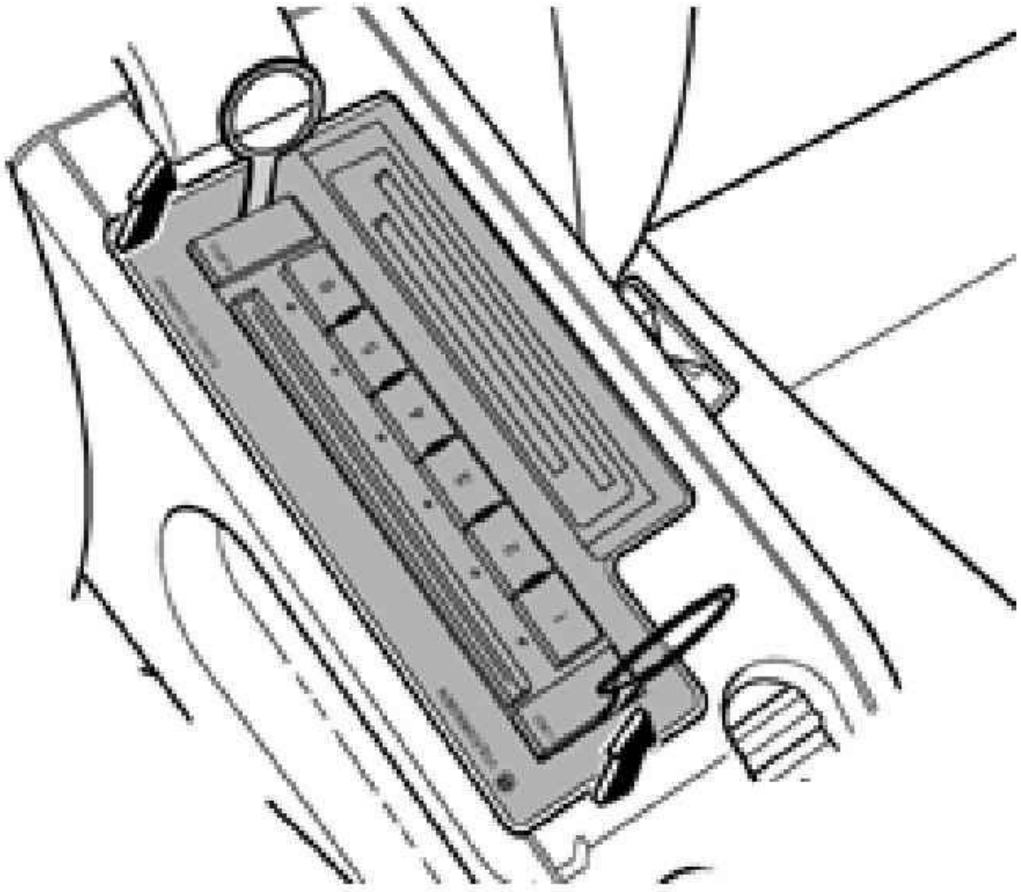


Fig. 85: Inserting CD Changer Removal Tools Into CD Changer
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Lift CD player from console using handles on tool 3316.
- If it is necessary to disconnect the electrical connections, remove right console side cover trim

  See **STORAGE, COVERS AND TRIMS** .

- Disconnect electrical harness connections.

TELEMATICS

GENERAL INFORMATION

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**
- **Disconnect negative (-) battery terminal.**
- **When disconnecting and reconnecting battery terminals, observe all applicable Notes and torque specifications, as well as instructions on performing OBD program and electrical system function checks as specified.**

Before troubleshooting or servicing, technicians must be familiar with all telematics functions, operating specifics and the particular service plan which the customer subscribes to.

Refer to "Volkswagen Telematics by On Star(R)" Self Study Program (SSP) and "Volkswagen Telematics by OnStar(R) Owner's Manual and/or OnStar(R) "Quick Reference Guide" to become familiar with applicable features and functions.

Telematics, technical features

Telematics is an in-vehicle communication system that uses cellular and Global Positioning System (GPS) technologies to provide the customer with safety, security and convenience services.

GPS is a "constellation" of 24 satellites that orbit the earth and constantly broadcast radio signals. The Telematics/Telephone Control Module receives GPS data, decodes it, and transmits the vehicle's location to the service provider's call center via the national cellular network.

Telematics services for Volkswagen customers are provided by On Star(R) via a dedicated call center. Service plans may provide route directions and concierge services as well as emergency or vehicle repair services. For details, See Volkswagen Telematics by OnStar(R); Owner's Manual.

Utilization of available Telematics services/features take place via customer's voice control, See Volkswagen Telematics by OnStar(R); Owner's Manual.

Upon customer request, the Volkswagen Telematics by OnStar(R) call center can remotely perform or activate the following vehicle functions:

- Lock vehicle
- Unlock vehicle
- Activate Hazard Lights
- Activate horn

During events where the Airbag Control Module processes a crash signal, the vehicle hazard lights are activated and the doors are unlocked via the respective door control modules. In addition, the telematics system automatically places an emergency call to the OnStar(R) call center.

Telematics hardware includes the driver operated telematics control head (which contains the OnStar(R) control buttons and telematics indicator lamp), microphone, roof mounted GPS/Cellular antenna and Telematics/Telephone Control Module (with supporting software) and related wiring.

All telematics components are factory installed/integrated into the vehicle electrical system.

Telematics system/component overview, see **Telematic system, component overview** .

ON BOARD DIAGNOSTIC (OBD)

The telematics system has extensive On Board Diagnostic (OBD) capabilities.

The Telematics/Telephone Control Module has a Diagnostic Trouble Code (DTC) memory. If a malfunction occurs in one of the components or wires which is monitored by the system, a record of the type of malfunction is stored in DTC memory. OBD program functions are performed using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding".

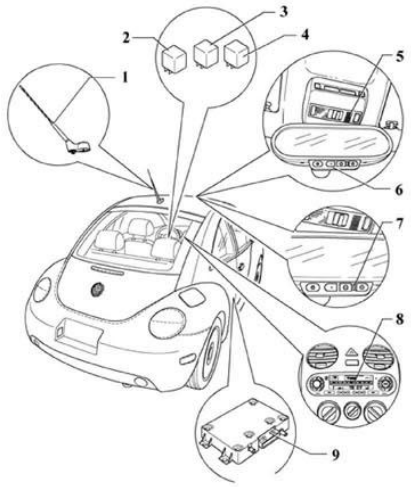
TELEMATIC SYSTEM, COMPONENT OVERVIEW

NOTE: The following list refers to items in Fig. 86 .

1. **Antenna -R11-, Antenna Amplifier -R24- and Antenna for Navigation System (GPS) -R50-**
   - On roof, rear
   - Removing and installing, See **GPS/Telematics antenna, removing and installing** .
2. **Dual Horn Auxiliary Relay -J733-**
   - On 13-position auxiliary relay panel, above relay panel.
3. **Auxiliary Emergency Flasher Relay -J517-**
   - On 13-position auxiliary relay panel, above relay panel.
4. **Warning Lamp Auxiliary Relay -J734-**
   - On 13-position auxiliary relay panel, above relay panel.
5. **Telephone Microphone -R38-**
   - Integrated with front interior light module.
   - Removing and installing, See **TELEPHONE MICROPHONE -R38-, REMOVING AND INSTALLING** .
6. **Telematic Control Head -E264-**
   - Integrated with rear view mirror.
   - OnStar(R) buttons, description, See **TELEMATIC CONTROL HEAD - ONSTAR(R) CONTROL BUTTONS, DESCRIPTION** .
   - Includes telematics indicator lamp -7-.
   - Removing and installing, See **TELEMATIC CONTROL HEAD -E264-, REMOVING AND INSTALLING** .
7. **Telematics Indicator Lamp -K186-**

- In Telematic Control Head.
- LED indicates telematic system operational status. Description, See **TELEMATIC CONTROL HEAD - ONSTAR(R) TELEMATICS INDICATOR LAMP, DESCRIPTION** .
- Telematic system, troubleshooting using telematics indicator lamp, See **TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP** .

8. **Radio -R-**
    - In center console.
9. **Telematic Control Module -J499-**
    - Installed behind right rear side panel trim under rear speaker.
    - Removing and installing, See **TELEMATIC CONTROL MODULE -J499-, REMOVING AND INSTALLING** .
    - Control module multi-pin connector terminal assignments, See **TELEMATIC CONTROL MODULE -J499- MULTI-PIN CONNECTOR ASSIGNMENTS** .



1 - Antenna -R11-, Antenna Amplifier -R24- and Antenna for Navigation System (GPS) -R50-

- On roof, rear
- Removing and installing

2 - Dual Horn Auxiliary Relay -J733-

- On 13-position auxiliary relay panel, above relay panel.

3 - Auxiliary Emergency Flasher Relay -J517-

- On 13-position auxiliary relay panel, above relay panel.

4 - Warning Lamp Auxiliary Relay -J734-

- On 13-position auxiliary relay panel, above relay panel.

5 - Telephone Microphone -R38-

- Integrated with front interior light module.
- Removing and installing

6 - Telematic Control Head -E264-

- Integrated with rear view mirror.
- OnStar® buttons, description
- Includes telematics indicator lamp -7-.
- Removing and installing

7 - Telematics Indicator Lamp -K186-

- In Telematic Control Head.
- LED indicates telematic system operational status. Description
- Telematic system, troubleshooting using telematics indicator lamp

8 - Radio -R-

- In center console.

9 - Telematic Control Module -J499-

- Installed behind right rear side panel trim under rear speaker.
- Removing and installing
- Control module multi-pin connector terminal assignments

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Fig. 86: Identifying Telematic System Component
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEMATIC CONTROL HEAD - ONSTAR(R) CONTROL BUTTONS, DESCRIPTION

The telematics control head is integrated to the interior rear view mirror. The control head contains three separate buttons as well as a system telematics indicator lamp (LED).

The OnStar(R) ("On*") button is used to contact the OnStar(R) call center to request various convenience services. It is also used to initialize/activate the owner's subscription to OnStar(R) services and/or update the customer's account in the event that the Telephone/Telematics Control Module requires replacement.

The Emergency button is used to contact the OnStar(R) call center to request emergency services such as fire department, police etc.

The Communication ("DOT") button is used to end a call to the OnStar(R) call center, place or answer personal calls or cancel a call if one of the other buttons is accidentally pressed.

NOTE: Use of certain OnStar(R) services requires a subscriber's Personal Identification Number(s) (PIN).

For complete system operation details, See Volkswagen Telematics by OnStar(R) & Owner's Manual.

TELEMATIC CONTROL HEAD - ONSTAR(R) TELEMATICS INDICATOR LAMP, DESCRIPTION

The telematics indicator lamp is located between the OnStar(R) and Emergency buttons. The green light comes on after a self-check routine is performed (approx. 10-15 seconds after ignition is switched on).

Indications:

- Green: Indicates system has passed self-test and is ready to place or receive calls. Light remains on even in areas without cellular coverage.
- Blinking green: Indicates a call has been initiated or is in progress.
- Red: Indicates system has not passed self-test or indicates system malfunction.

NOTE: Additional information and system troubleshooting using telematics indicator lamp, See TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP .

TELEMATIC CONTROL HEAD -E264-, REMOVING AND INSTALLING

NOTE: Before beginning repairs on the electrical system, disconnect battery! See BATTERY, DISCONNECTING AND RECONNECTING .

Removing

- Remove Interior rear view mirror

  See **INTERIOR REAR VIEW MIRROR, REMOVING AND INSTALLING** .

CAUTION: Telematic control head buttons cannot be removed, dismantled or serviced separately. Should malfunctions occur, replace complete control head.

Installing

Install in reverse order of removal.

- Check telematic system coding and recode if necessary, See **TELEMATIC CONTROL MODULE -J499-, CODING** .

TELEMATIC CONTROL MODULE -J499-, REMOVING AND INSTALLING

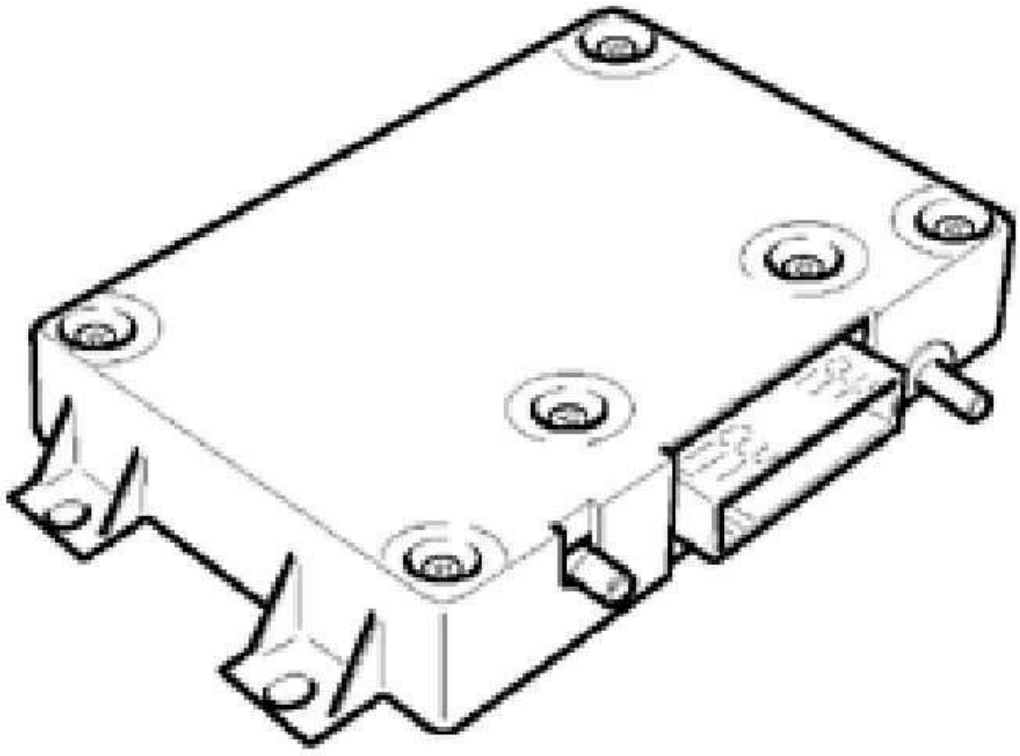


Fig. 87: Telematic Control Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

NOTE:

- **If the telematic control module is replaced, the OnStar(R) system needs to**

be reconfigured, See TELEMATIC CONTROL MODULE -J499-, RECONFIGURING .

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Using the VAS 5051 Vehicle Diagnostic Testing and Information system in operating mode "Guided Fault Finding, and function" -J499- Telematic control module, replacing" it is possible to read the telematic control module coding from the existing module before removal. Note code prior to removal in order input code into replacement control module.**

Removing

NOTE: Before beginning repairs on the electrical system, disconnect battery! See BATTERY, DISCONNECTING AND RECONNECTING .

- Remove right rear side panel trim

  See **SIDE PANEL TRIM, REMOVING AND INSTALLING** .

- Remove speaker retaining bracket -1-.
- Disconnect electrical connector behind speaker -2-.

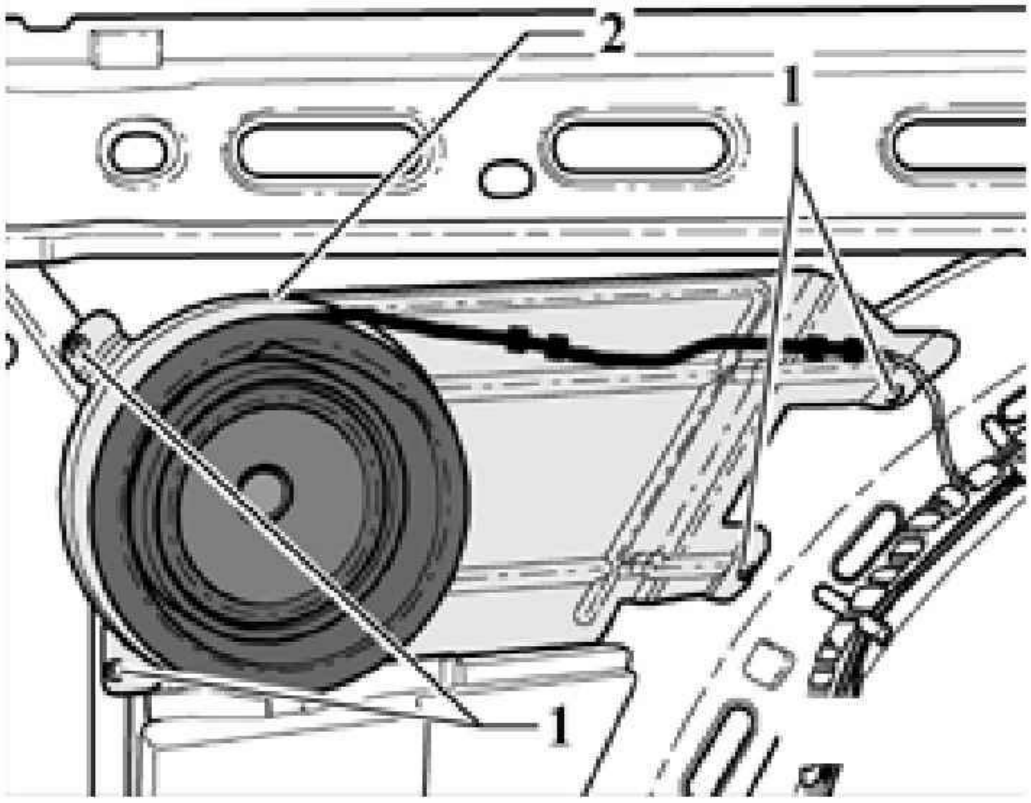


Fig. 88: Removing Speaker Retaining Bracket
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out protective shield -1- inserted under speaker

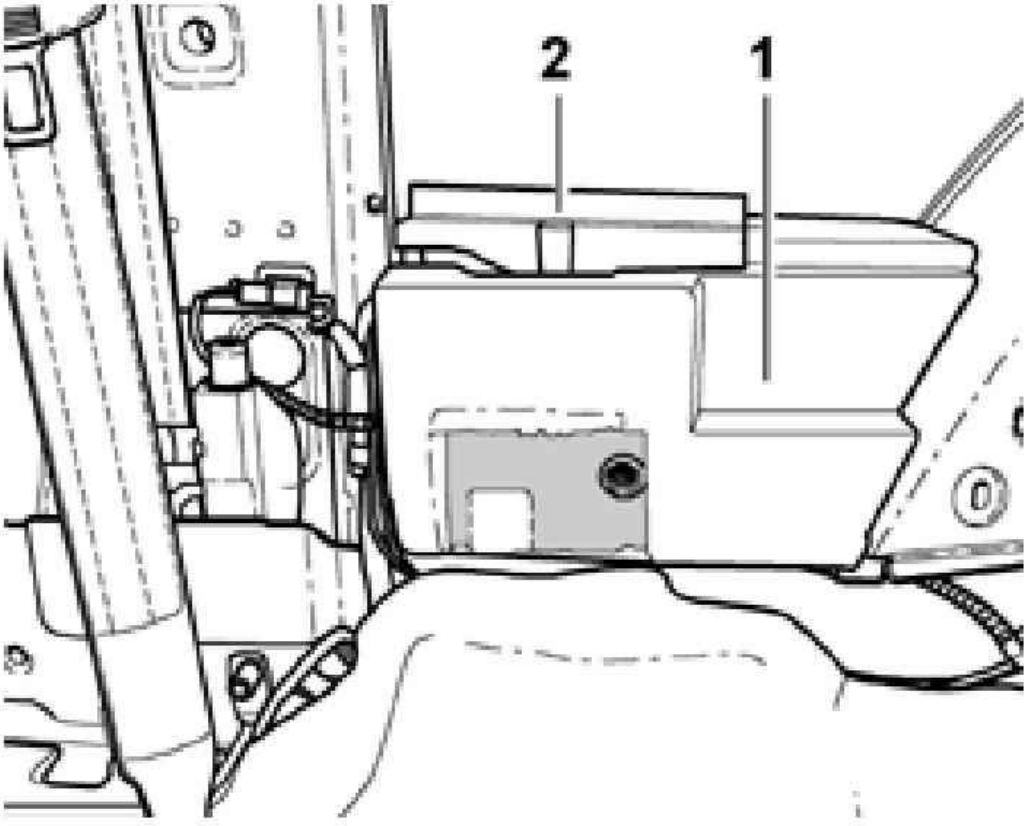


Fig. 89: Removing Protective Shield Inserted Under Speaker
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Pull out lid -2- from protective shield
- First disconnect 42-pin connection -2- from control module, as follows:

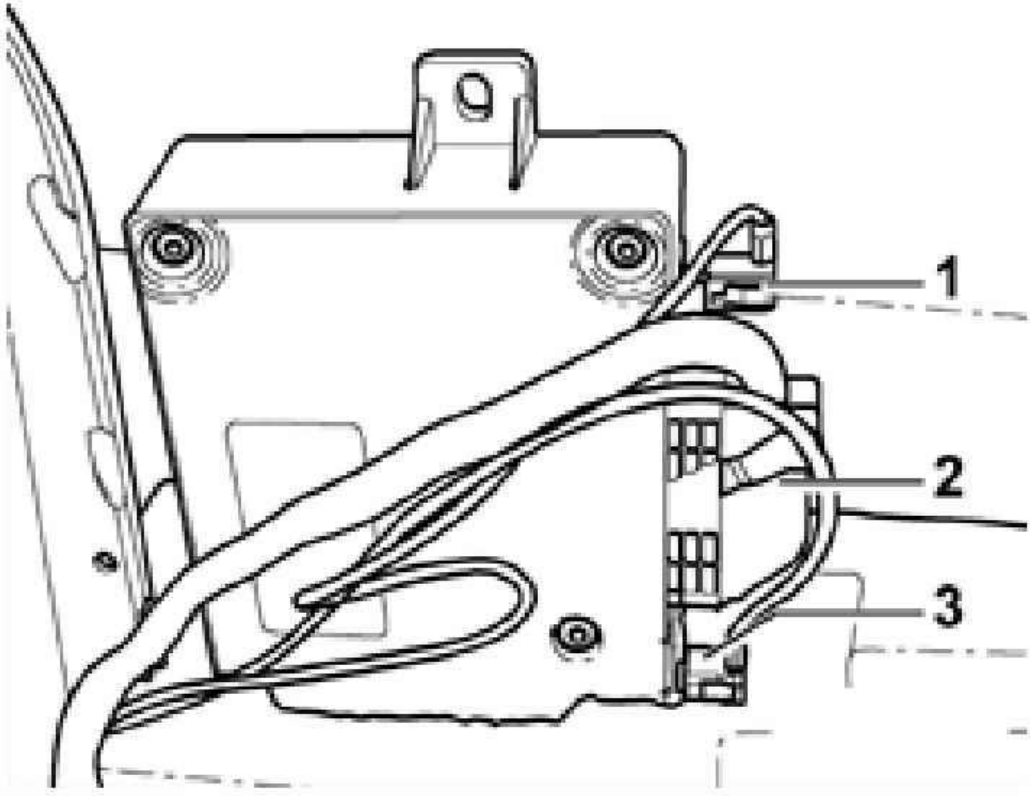


Fig. 90: Disconnecting 42-Pin Connection From Control Module
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Depress clip and slide locking lever
- Then disconnect antenna cable connections -1- and -3- from control module.

Installing

Install in reverse order of removal, noting the following:

If telematics control module was replaced:

- Code telematics control module, See **TELEMATIC CONTROL MODULE -J499-, CODING** .
- Reconfigure telematics system for OnStar(R) functions, See **TELEMATIC CONTROL MODULE -J499-, RECONFIGURING** .

TELEMATIC CONTROL MODULE -J499- MULTI-PIN CONNECTOR ASSIGNMENTS

42 pin multi-connector -T42-

NOTE: The following list refers to items in Fig. 91 .

1. Signal activation - Dual Horn Auxiliary Relay
2. Signal activation - "lock vehicle"
3. Cellular telephone connection -Audio in (not used)
4. Cellular telephone connection - Battery Feedback(not used)
5. Cellular telephone connection - Ground (GND)
6. Cellular telephone connection - TXD-transfer (not used)
7. Cellular telephone connection - RTS (not used)
8. Cellular telephone connection - shielding Ground (GND) (not used)
9. not used
10. Line (+) Output to radio
11. Auxiliary speaker (+) (not used)
12. Telephone microphone (+)
13. K-wire, Data Link Connector (DLC)
14. Power supply - Terminal 15
15. Telematic indicator LED "red" (in Telematic Control Head)
16. Telematic indicator LED "green" (in Telematic Control Head)
17. not used
18. Ground (GND) (Terminal 31)
19. Ground (GND) (Terminal 31)
20. not used
21. not used
22. Signal activation - Auxiliary Emergency Flasher Relay
23. Signal activation - "unlock vehicle"
24. Cellular telephone connection - Audio out (not used)
25. Cellular telephone connection - Audio Ground (GND) (not used)
26. Cellular telephone connection - power supply (not used)
27. Cellular telephone connection - RXD (not used)
28. Cellular telephone connection - RTS (not used)
29. Signal status - Telephone (not used)
30. not used
31. Line (-) Output to radio
32. Auxiliary speaker (-) (not used)
33. Telephone microphone (-)
34. Mute - Radio

35. Input "SOS" from telematic control head
36. Input "Power" from telematic control head
37. not used
38. Crash-Signal from airbag control module
39. Terminal 30 (B+)
40. Terminal 30 (B+)
41. Emergency (backup) battery (+) (not used)
42. Emergency (backup) battery (-) (not used)

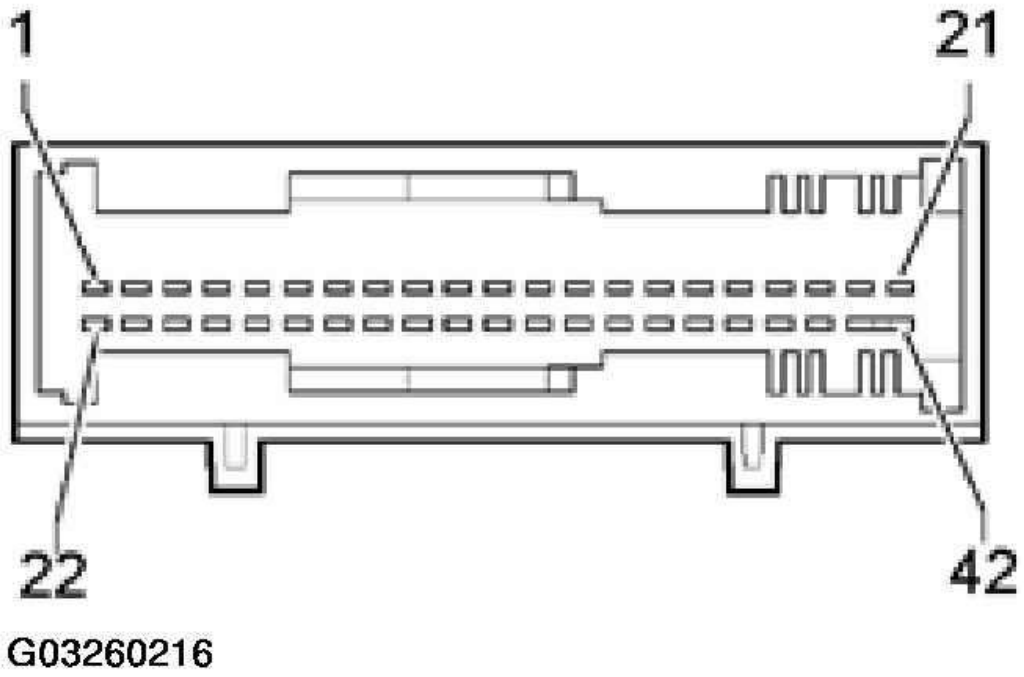


Fig. 91: Identifying 42-Pin Multi-Connector -T42- Terminals
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEMATIC CONTROL MODULE -J499-, CODING

After replacing the Telematic Control Module, the control module must be coded and OnStar(R) system needs to be reconfigured.

Special tools, testers and auxiliary items needed

- VAS 5051 Vehicle Diagnostic Testing and Information System

- Cable adapter VAS 5051/5a or VAS 5051/6a

Telematic Control Module -J499-, coding

NOTE:

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Using the VAS 5051 Vehicle Diagnostic Testing and Information system in operating mode "Guided Fault Finding, and function" -J499- Telematic control module, replacing" it is possible to read the telematic control module coding from the existing module before removal. Note code prior to removal in order input code into replacement control module.**

- Connect VAS 5051 with adapter cable to Data Link Connector (DLC) and select mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

Fig. 92: Identifying VAS 5051 Vehicle Diagnostic Testing And Information System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

After all Control Modules have been registered and DTC memories checked:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System

- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR"
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "Telematics control module, coding"
- Follow testers prompts.

TELEMATIC CONTROL MODULE -J499-, RECONFIGURING

After replacing the Telematic Control Module, the control module must be coded and OnStar(R) system needs to be reconfigured as described below. Have the VIN and customer details on hand.

Special tools, testers and auxiliary items needed

- VAS 5051 Vehicle Diagnostic Testing and Information System
- Cable adapter VAS 5051/5a or VAS 5051/6a

NOTE:

- **DO NOT exchange Telephone/Telematic Control Modules between vehicles! Each module contains specific Station Identification (STID) and Electronic Serial Number (ESN) data unique to the VIN. This data is used by OnStar(R) and National Cellular Telephone Network to identify the vehicle and administer the customer's account.**
- **Failure to reconfigure the control module after replacement will prevent OnStar(R) services and features from functioning, and will result in a customer return for repair.**

Prerequisite

- Telematics control module is coded, See **TELEMATIC CONTROL MODULE -J499-, CODING** .

Reconfiguration

Fig. 93: Identifying VAS 5051 Vehicle Diagnostic Testing And Information System
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Where applicable, carefully record the 8 character Station Identification (STID) number and Electronic Serial Number (ESN) from labels on replacement module.
- Connect VAS 5051 with adapter cable to Data Link Connector (DLC) and select mode "Guided Fault Finding"
- Enter appropriate model, equipment and model year information and press ">" to confirm.

After all Control Modules have been registered and DTC memories checked, see "Continued for all".

If the STID number and ESN DO NOT appear on labels on the new control module, proceed as follows:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR" (Display may appear as "Telematics")
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "Check control module versions -Telematics NAR".
- Record ESN and STID number from appropriate display fields.

Continued for all:

- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR" (Display may appear as "Telematics")
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "check/erase DTC memory Telematics NAR"
- Switch off ignition and wait a few moments.
- Switch on ignition.
- Enter address word 75 - "Telematics"
- Select "Go to"
- Select "Function / Component Selection"
- Select "Body"
- Select "Electrical System
- Select "01 -Systems capable of self-diagnosis"
- Select "Telematics NAR"
- Select "Functions - Telematics NAR" and press ">" to confirm.
- Select "check DTC memory - Telematics NAR".

No DTCs must be present.

- Check and confirm the green telematics indicator lamp in Telematics Control Head is on.

- Exit operating mode "Guided Fault Finding".
- Disconnect VAS 5051 from DLC.

- Drive vehicle outside to area away from tall buildings, and with no overhead obstructions (trees, bridges, etc.).
- Press the blue OnStar(R) ("On*") button. A recorded introduction will be heard.
- Press the "On*" button again at any time during the recording (it is not necessary to wait for the recording to finish).
- When an OnStar(R) call center advisor answers, identify yourself as a Volkswagen Technician, and that you have replaced the "Vehicle Communications Interface Unit (VCIM)".
- Supply advisor with STID number and ESN from new module. Supply the VIN and customer details if necessary.
- The advisor will guide you through the system reconfiguration and update of the customer's account.
- When reconfiguration is complete, end call by pressing the Communications ("DOT") button.
- Wait ten minutes and press the "On*" button again to verify system operation. Inform call center advisor you are a Volkswagen Technician performing a quality check after VCIM replacement/system reconfiguration.
- End call by pressing the Communications ("DOT") button.

NOTE:

- **Normal connection time is 10 - 15 seconds. However, depending on local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.**
- **If the message: "unable to contact OnStar" is heard, try relocating vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).**
- **If the message: "OnStar request ended" is heard, the cellular connection was interrupted before the connection was completed. Wait for a short period of time before repeating connection attempt.**
- **If you are still unable to connect, call OnStar(R) Customer Care at 1-888-390-4050. The advisor will verify the customer's OnStar(R) account is active.**

GPS/TELEMATICS ANTENNA

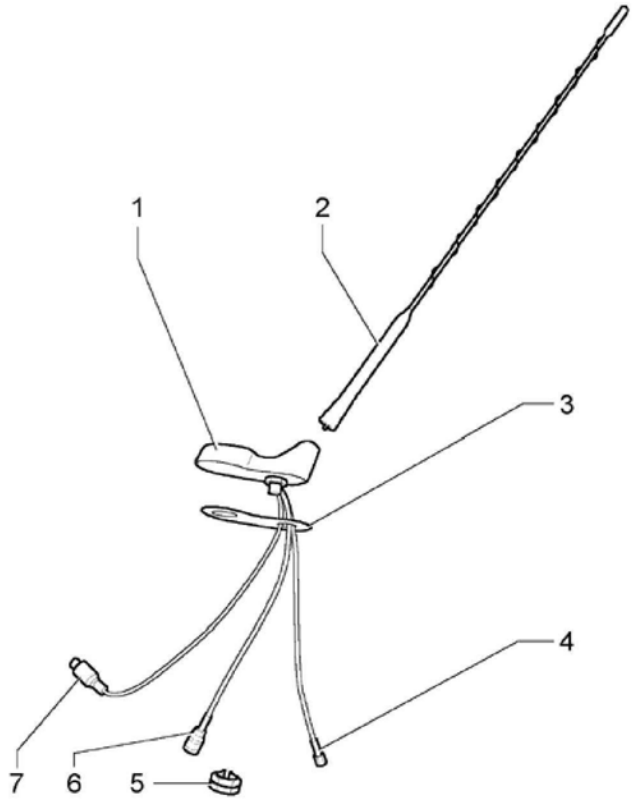
Models with Telematics are equipped with "triplex" type antennas mounted to the rear portion of the roof.

These antennas process signals for the radio as well as telematics/GPS functions.

GPS/TELEMATICS ANTENNA, OVERVIEW

NOTE: The following list refers to items in Fig. 94 .

1. **Antenna base**
2. **Antenna mast**
3. **Gasket**
4. **Antenna connection - Navigation (GPS)**
    - Threaded
5. **Hex nut**
6. **Antenna connection - Radio**
    - Plug
    - Black
7. **Antenna connection - Telematics**
    - Plug
    - Grey



1 - Antenna base

2 - Antenna mast

3 - Gasket

4 - Antenna connection
- Navigation (GPS)

- Threaded

5 - Hex nut

6 - Antenna connection
- Radio

- Plug
- Black

7 - Antenna connection
- Telematics

- Plug
- Grey

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Fig. 94: Exploded View Of GPS/Telematics Antenna
Courtesy of VOLKSWAGEN UNITED STATES, INC.

GPS/TELEMATICS ANTENNA, REMOVING AND INSTALLING

CAUTION: Before beginning repairs on the electrical system:

- **Obtain the anti-theft radio security code.**
- **Switch off all electrical consumers.**
- **Switch ignition off and remove ignition key.**

Removing

- Unclip rear headliner trim and left/right C-pillar trim

  See **PILLARS AND SIDE TRIMS** and **PILLARS AND SIDE TRIMS (CONVERTIBLE)** .

- Carefully lower headliner at rear slight in order to access antenna cables etc.
- Unclip cable connections -arrows- from roof and separate connections.

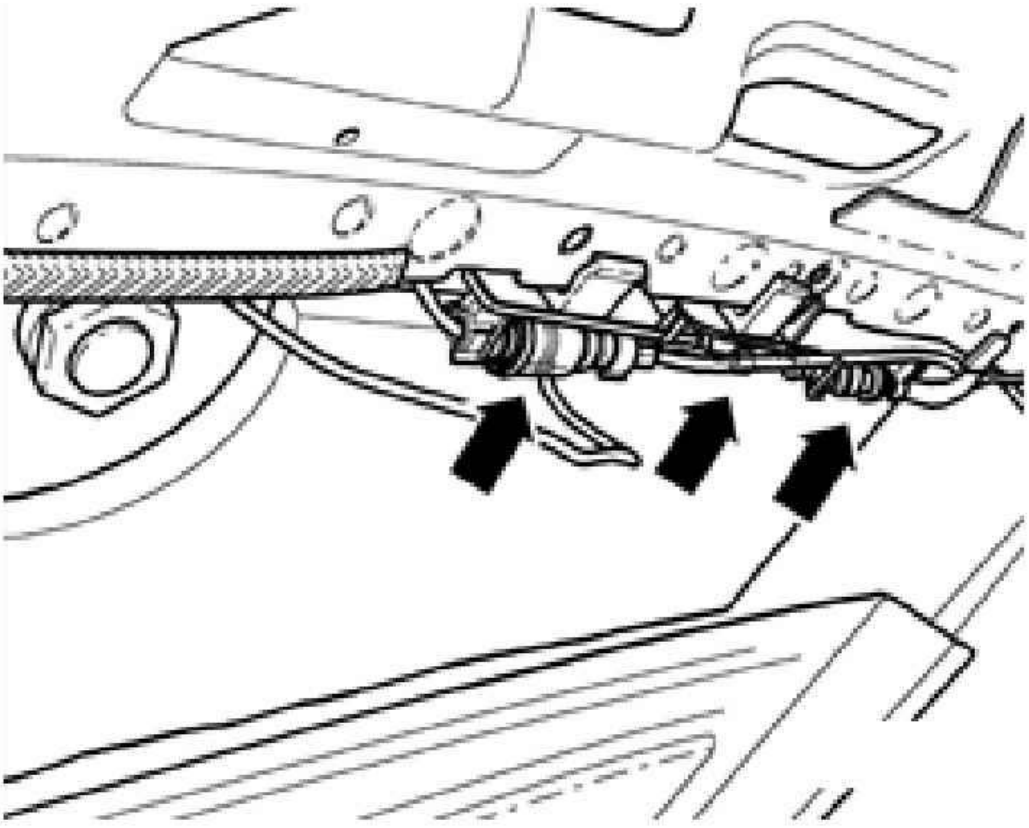

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Fig. 95: Removing Cable Connections From Roof
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Remove nut -2- and remove antenna.

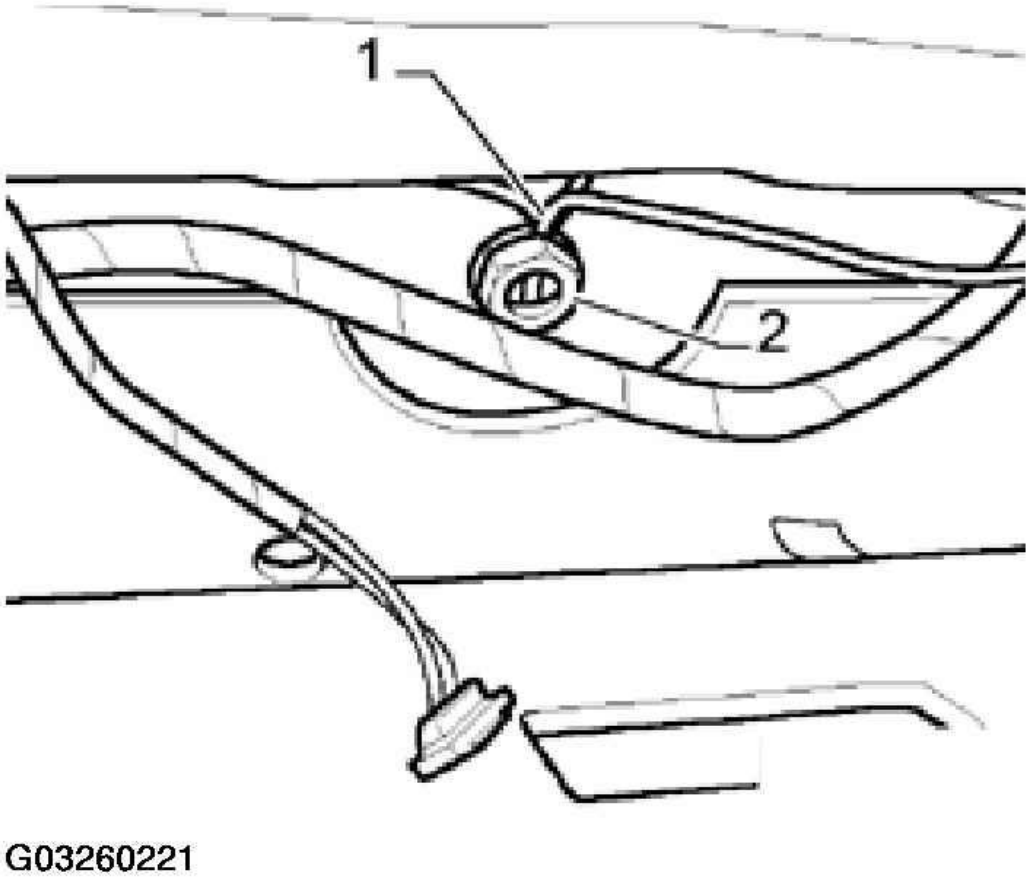

Fig. 96: Removing Antenna Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

Installing

Install in reverse order of removal, noting the following:

- Ensure gasket is properly oriented in relation to relief areas -arrows- on antenna base

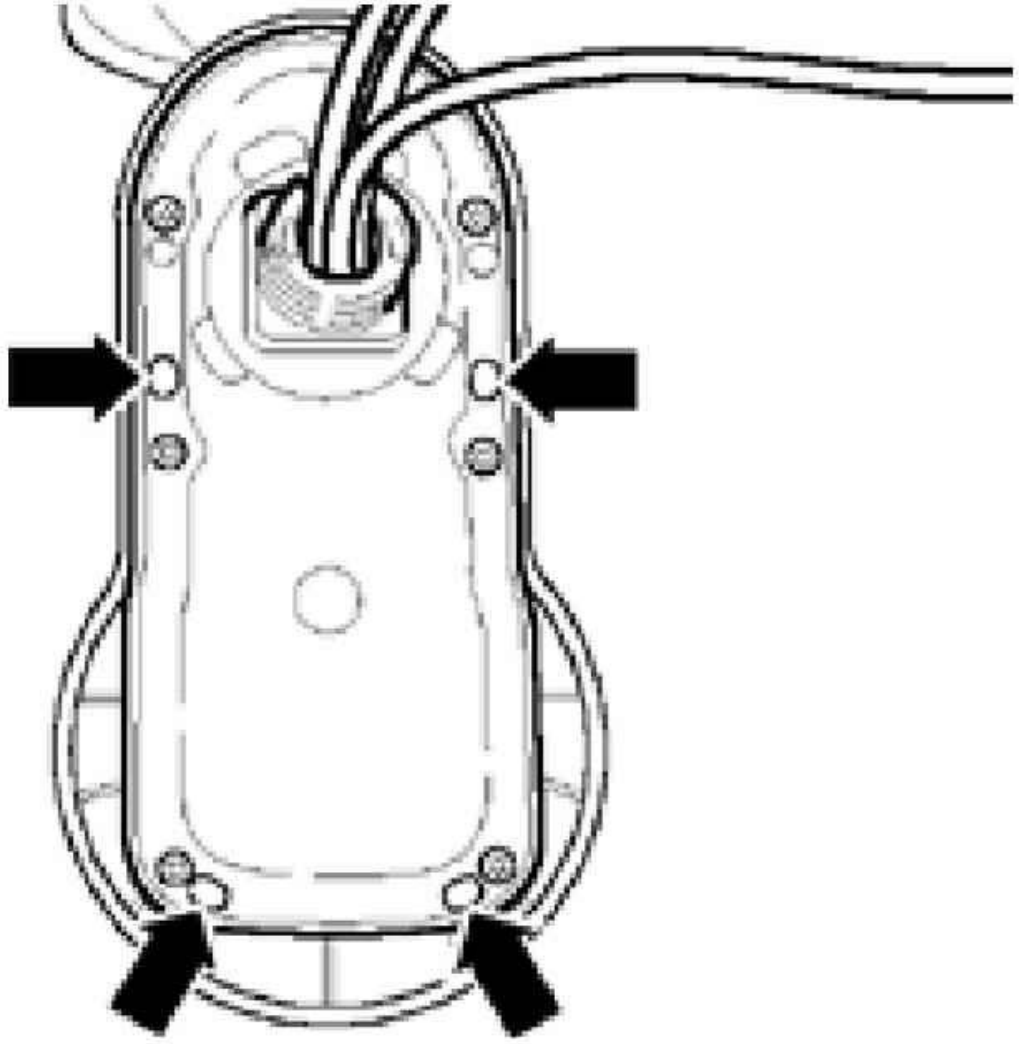

Fig. 97: Installing Gasket On Antenna Base
Courtesy of VOLKSWAGEN UNITED STATES, INC.

- Ensure stress free routing of antenna cables -1- through nut -2-.
- Apply contact grease in area where nut/serrated washer contacts roof sheet metal.

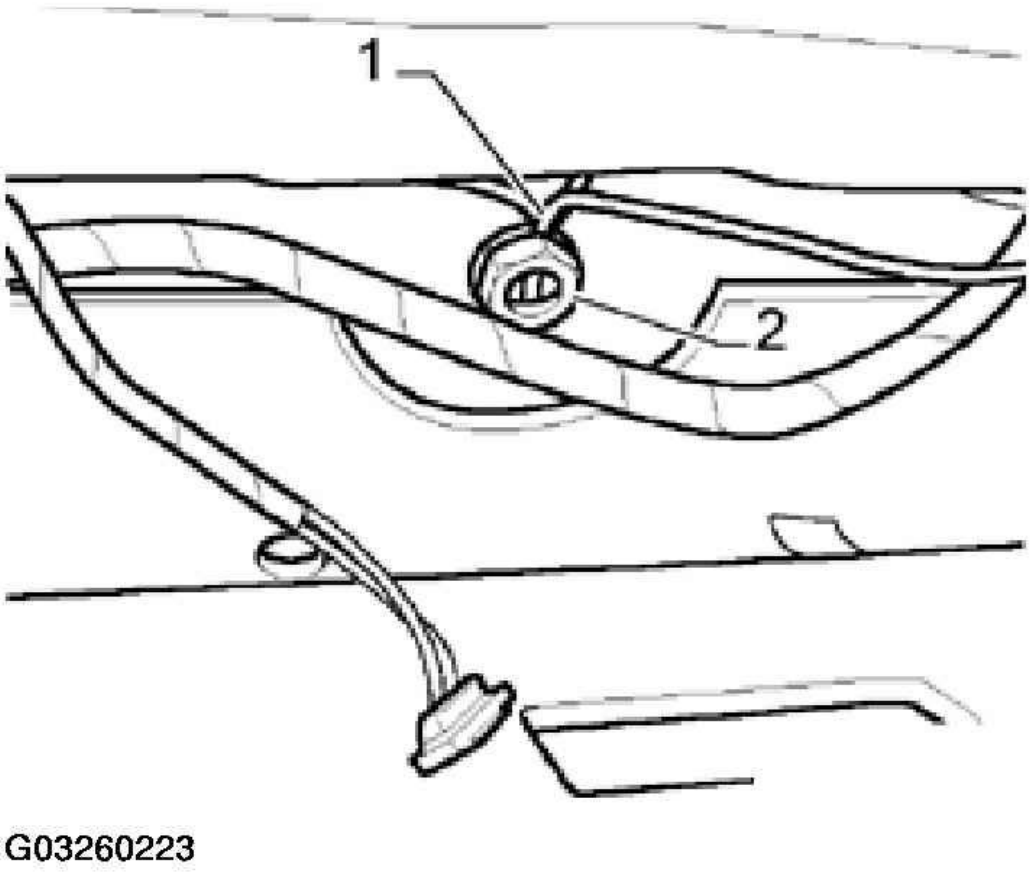

Fig. 98: Installing Antenna Cables Nut
Courtesy of VOLKSWAGEN UNITED STATES, INC.

TELEPHONE MICROPHONE -R38-, REMOVING AND INSTALLING

Telephone Microphone -R38- is integrated with the interior rear view mirror and cannot be removed or serviced separately.

Removing

- Remove interior rear view mirror

  See **INTERIOR REAR VIEW MIRROR, REMOVING AND INSTALLATION** .

Installing

Install in reverse order of removal.

TELEMATICS SYSTEM, TROUBLESHOOTING USING TELEMATICS INDICATOR LAMP

The following allows technicians to perform an initial evaluation of Telematics system operation status for troubleshooting using the OnStar(R) telematics indicator lamp (and pre-recorded system messages where applicable).

NOTE: This serves only as an initial evaluation only and is not meant to supercede detailed OBD program procedures carried out with VAS 5051 Vehicle Diagnostic Testing and Information System in operating mode "Guided Fault Finding"

The telematic indicator lamp LED is located in the telematic control head. LED indications are red or green, lighting continuously, blinking slowly or quickly.

Telematic system status can be determined via the LED with the ignition switched on and referenced from **TELEMATICS LED INDICATION CHART** table:

TELEMATICS LED INDICATION CHART

LED indication	**System status:**
Off	No connection, no malfunction
Red - continuously	No connection, malfunction in telematics hardware
Green -continuously	After completion of self-test or when OBD program is performed
Red - blinking slowly	Establishing connection, malfunction in telematics hardware
Red - blinking quickly	Connection active, malfunction in telematics hardware
Green - blinking slowly	Establishing connection, no malfunction
Green - blinking quickly	Connection active, no malfunction

Indications, overview:

- LED is off when ignition is off.
- The green LED comes on after a self-check routine is performed (approx. 10- 15 seconds after ignition is switched on). Sending or receiving voice communication with the OnStar(R) call center is now possible. LED remains on even in areas without cellular coverage.
- The green LED slowly blinking indicates a communication request has taken place and the system is in the process of establishing a cellular connection.
- The red LED indicates a malfunction in the telematics hardware was determined during the self check.

NOTE: After pressing either the OnStar(R) or Emergency button, a recorded message announces: "connecting to OnStar," followed by progression tones. Normal connection time is 10 - 15 seconds. However, due to local cellular/GPS conditions, making a connection could take up to three minutes. Be patient.

Condition - telematics indicator lamp "green" plus:

- message "unable to contact OnStar(R) and disconnect,

- message "OnStar(R) request ended",
- nothing happens,
- or a cellular message

indicates system cellular reception is affected. Proceed as follows:

- Relocate vehicle to a more elevated or open area and repeat connection attempts. Depending on the local cellular/GPS traffic conditions, several connection attempts may be necessary (and are normal).
- Shortcomings in the vehicle's cellular/GPS antenna system also affects connectivity. Check all cellular/GPS antenna connections, and perform OBD program using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check for DTCs related to antenna function.
- If you are still unable to connect, record the VIN and customer details and call OnStar(R) Customer Care at 1 -888-390-4050. Identify yourself to the advisor as an Volkswagen Technician. The advisor will verify the customer's OnStar(R) account is active. Further troubleshooting assistance may be given.

Condition - telematics indicator lamp "red"

indicates system hardware (vehicle portion) is affected. Proceed as follows:

- Perform OBD using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check/perform:

- DTC memory (function 02)
- Output DTM (function 03)
- Read Measuring Value Block (function 08)

NOTE: In the event any of the OnStar(R) control buttons are either inadvertently or deliberately pressed for longer than 15 seconds, the OBD program assumes a button is sticking. The red status light will come on and a DTC loads in memory. Perform OBD program using VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding". Check DTC memory for DTC 01526 "mechanical malfunction". Inform customers accordingly.

TRANSPORT MODE DEACTIVATING

The Telematic system is disabled (switched-off) when Transport Mode is activated. This is necessary when vehicles are transported over long distances or stored for longer periods of time.

Some Volkswagen vehicles are initially delivered to dealerships with the Telematics system in Transport Mode, and must be deactivated before delivery to the customer using OBD program (VAS 5051 Vehicle Diagnostic Testing and Information System in mode "Guided Fault Finding".)